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IS THERE A "CORNER" IN RUBBER?

THE prices of rubber boots and shoes in the United States have been advanced twice within two months. The second, and most marked advance for years, was made simply by the sending out of telegrams, without warning, to the leading jobbing houses. It is worth considering, by the way, that the company signing these telegrams consumes in its factories about one-tenth of the world's total production of crude rubber. So large a concern naturally occupies a position of independence in the trade and one that enables it to act without particular regard to its competitors. In the present case, the competing companies are likely to welcome the advance, under which they can profit without the necessity of any effort on their own part to put up prices.

Without regard to the causes of the prices of raw materials, it must be recognized that the making of rubber footwear is not philanthropy, and that nowhere does any obligation exist to make and sell goods for a lower price than will yield a profit. There may be a lesson for future study in the fact that the apparently necessary advance on "rubbers" was made by a great corporation; suppose the problem had had to be met by a dozen or twenty companies, all working independently!

The situation has been made in part by the interests which have been speculating lately in cotton. The price of this material, for some time past, has been purely artificial, not merely in the United States, but all over the world. The leaders in the "bull" movement have operated daily in New York, New Orleans, Liverpool, and Alexandria (Egypt), and have practically bottled up the world's supply of cotton. It is well enough to claim that no great commodity can be "cornered"; that ultimately disaster must overtake whoever attempts anything so rash.

Nevertheless, the visible supplies of many great commodities can be controlled for awhile, and the temptation always exists for attempting it. The fact that an attempt to "corner" cotton had well nigh bankrupted certain speculators not so many months ago, did not prevent Mr. Daniel Sully from appearing on the scene just as they were dropping out, and, with his financial backers, carrying on the speculative movement in just the same way. The failure of Mr. Sully is just now one of the sensations of the day, but evidently the "bull" position in cotton is so strongly supported in some quarter or other that no promise exists of materially cheaper textiles in the near future.

The rubber industry does not stand alone now, if it ever did. High as may be the price of raw rubber, the price of other materials entering into rubber goods is also very important. The first belting produced by the rubber factories was advertised as "combination belting," on account of the employment in it of cotton duck, and the designation might properly have been continued. And the use of cotton is no less essential in other lines—in rubber footwear, for instance. Hence the importance to the rubber trade of the cotton situation. What the rubber trade can do to remedy the situation is a serious question, especially

as it is confronted by a prospect of diminished orders as a result of the advanced cost of goods.

That cotton is selling at artificial prices is beyond question; the condition of the cotton market is known to and studied by hundreds of thousands of people. The raw product is grown almost under our own eyes, by millions of American citizens, and every movement of each annual crop is patent to whoever will look on. And the consensus of opinion is that the selling price to-day is higher than is necessary to reward properly the producer, and allow fair commissions and profits to the middlemen who advance the commodity toward the mills.

Is crude rubber also selling at artificial prices? On account of the remoter sources of rubber, and the fact that its movement is largely beyond the observation of the inhabitants of the great consuming countries, the number of people familiar with the details of the trade is comparatively small. All that the average purchaser of the raw material knows is that, when seeking to cover his requirements, the price often is inconveniently high, and sudden and marked advances occur without any warning. Why should not rubber be cornered, as well as cotton?

THE INDIA RUBBER WORLD has not always credited reports that this or that rise in rubber was due simply to speculative efforts to force the consumer to pay more than a fair price for the material. But we have seen the gradual approach of what appears to be the limit of production under existing conditions. We beg leave to dissent from the suggestion by a contributor on another page of this issue, that the present high prices of rubber must have the effect of bringing larger supplies to market, and that an early decline must necessarily result. While we should be pleased to see such a development, the question presents itself, where is the increased supply to come from? The fact is that many rubber producing districts appear definitely to have reached the utmost limit of production, and the remaining districts do not appear to have the necessary working forces to make an immediate increase possible at any given time.

Year after year the world's supplies of rubber grow smaller, as compared with the demand for the commodity. Steadily the increase in transportation facilities render it easier to control the movement of the whole production within a given period, while the extension of telegraphic communication enables large traders to keep in closer touch with supply and demand in every quarter. Meanwhile the consumer, sticking to his work of making goods, and buying raw materials day by day, in the nearest market, as needed, has been content to let the market take care of itself. To-day he finds cotton controlled by speculators, beyond a doubt. Need wonder be if he suspects the same of crude rubber? A combination of consumers may become necessary to meet the situation, just as the combination of rubber footwear makers above referred to has come into existence to control prices in this line of production.

The question which heads this article is bound to come for consideration, giving the crude rubber handlers a chance to prove the negative, if they are prepared to do so.

"RUBBER-LIKE GUMS."

FROM time to time the daily press rings with the discovery of a new and unsuspected source of crude rubber. Some plant, shrub, or vine that had hitherto either been a nuisance, or else the product of such sterile soil that its presence was ungrudged, is found to contain a "rubber-like gum." At once a means of separating this shrub from its presumably valuable contents is devised and protected by an indulgent government. And then—and then—well, the promoters may believe that those who put in the money will reap rich rewards. They may be absolutely honest in securing money to prove their position commercially, but each of these projects is received by the sane sense of the trade at large with the greatest distrust. Of course that proves nothing, although in ninety-nine cases out of a hundred, that same estimate turns out to be correct.

When the milkweed (*Asclepias Cornuti*) was to prove such a remunerative product because of its rubber and its fiber, it was the scientific men of Canada who were the believers, while the more ignorant rubber manufacturer and importer was a profound skeptic. That was years ago and still we hear of no quotations for *Asclepias* rubber.

Later the "guayule" plant was pulled from its alkaline bed in Mexico and forced into notice. Again and again it came to the front. Factories were built in Mexico, machinery was designed in Germany, promoters tried to buy up all the uplands on which it grew—with other people's money—yet to-day we have no guayule rubber.

And now comes the *Picradenia floribunda utilis*, the Colorado "rubber plant." Is it to be like the others? Are we to have Colorado rubber? Is the day at hand when our market reports will quote "*Picradenia* fine," "*floribunda* medium," and "*utilis* coarse?"

THE "NORTHERN SECURITIES" DECISION.

THE more or less superfluous assurance of the attorney general of the United States, that the government has no intention of "running amuck" in its prosecution of trusts was not required to convince those interested in the two great India-rubber organizations, the United States Rubber Co. and the Rubber Goods Manufacturing Co. that their properties were in no immediate danger of molestation. The decision of the United States supreme court, adverse to the Northern Securities Co., which practically declares that a holding company is illegal, has, of course, created an enormous amount of talk and speculation as to the extent of its application. Without attempting to go into the extent of the decision and its points, it is sufficient for those interested in India-rubber to say that there seems no warrant for any belief that even by an exaggerated construction could any of the principles laid down be made applicable to the rubber companies.

This action was brought and the decision rendered under the Sherman act of 1890—known as the anti-trust law—which prohibits unlawful combinations to the detriment of free commerce between the states. It is almost,

therefore, of the nature of things that a corporation to come within the provisions of this law must be of a public, or a semi public character. A common carrier, like a railroad or an express company, doing business in many states, cannot be permitted to form combinations to the destruction of competition or the control of rates. While those who are enthusiastic over the decision are now proclaiming that it means the prevention of such combinations as the meat trust, the steel trust, and the oil trust, this view is not borne out by the decision itself, and, even if it were, it would require considerable stretching to extend the same ruling to India-rubber.

There is no hypothesis that can make the ownership of a number of rubber shoe factories by the United States Rubber Co. "an interference with free traffic between the states." The rubber shoe business, and the rubber tire business, or the hose business are not public in their character. The goods manufactured can hardly be regarded as among the necessities of life. The cases are, therefore, not similar, the conditions are unlike, and even if the government were inclined to "run amuck" against all combinations, which the attorney general assumes is not the case, it is hardly within the reach of imagination to believe that any course would attempt to make the Sherman law applicable to India-rubber.

EVERY NOW AND THEN the question of "synthetic" rubber comes up, and indeed is quite a "bugaboo," particularly to those interested in rubber planting. Of course, the average manufacturer would be perfectly willing for it to appear, particularly while the prices of crude gum are as high as they are at present. As for the importers, they apparently do not care either way as they have confidence that when the rubber millennium comes that they will be able to get their share of business whether they supply gum from nature's laboratory or man's. As a matter of good business, is not the time ripe for some live insurance company to issue a line of policies to timid planters and producers insuring them against the disaster to their interest which they fear? Quite a business ought to be done in this line and the profits would be in proportion to the size of the premiums paid. Further than this, it is very doubtful if such an insurance company would ever be called upon to pay a single loss.

THERE ARE MANY COMPLAINTS OF LATE to the effect that Pontianak gum is not nearly as good as it used to be. No doubt there are some who will say that it never was good for anything anyhow, but in spite of this it has its use, and a very large one. The trouble with the gum seems to be that the native gatherers, in the process of coagulation, add an earthy material, and that they are adding too much. If manufacturers and importers would refuse to receive the gum containing over a certain percentage of the adulterant, the evil would be stopped in time, for once the native gatherers find that they have no market for an inferior material they are likely to bring in something better.

WITH the beginning of the dry season, say January next, there are a number of *Castilloa* plantations in Mexico that should and doubtless will send cultivated rubber to market. However prepared it will sell.

AN INCONGRUOUS SITUATION.

TO THE EDITOR OF THE INDIA RUBBER WORLD: When one studies the crude rubber situation in all its phases it develops an amount of incongruity that would be absurd were it not so serious. In the mechanical goods business, for example, customers are retrenching and buying less and making a bitter fight for lower prices, while the manufacturer is paying excessively both for cotton fabrics and crude rubber. This might continue were the demand for rubber increasing, or even if it were to continue as it has been during the past winter. Such, however, is not the case. At least twenty of the great mechanical concerns in America have rubber on hand sufficient to allow them to fill orders up to the arrival of the new crop. Further than this, the rubber shoe season is over, and one of the largest buyers of crude in the American market will shortly cease to be an active factor. Further still is the unquestioned fact that the general German trade is only fairly good, while that of England is going through a period of dullness. Added to all this, the fact that the high prices will stimulate rubber production the world over, it would seem as if a prediction for lower prices might now be safely made, if ever. Frankly, there is no shadow of equity to-day between the price of crude rubber and the demand for it, and shrewd buyers are waiting to hear "something drop." The argument to the high price believer, treated with a bit of *reductio ad absurdum*, should be—

Rubber is bound to be higher:

Because, the shoe season being over, the United States Rubber Co. and all of the other shoe companies will stop buying rubber.

Because, more than twenty of the leading mechanical rubber companies have stocks large enough to last until August.

Because, sales of mechanical rubber goods show a falling off of about 15 per cent. over last season.

Because, the rubber business in Germany is barely normal and that in England is dull.

Because, the past high prices will, as they always have, bring in quantities of extra rubber from all known sources.

Therefore, say some, rubber will stay high and go higher.

Sensible, isn't it? D. C.

March 20, 1904.

A CARD FROM THE HYDE RUBBER WORKS.

TO THE EDITOR OF THE INDIA RUBBER WORLD: We notice an account in the press of an action by the Dunlop Rubber Co. against the "Hyde Rubber Co." of Hyde. As we have received numerous communications from our customers on the subject we should be obliged if you will kindly give publicity to the fact that we have no connection with this concern.

It may be of interest to state that in November of last year we obtained an injunction against Walter Cheetham, trading as the Hyde Rubber Co., to restrain him from carrying on business under that name, or of advertising for sale any tire under the title "Woodley" tire. Yours faithfully,

THE HYDE RUBBER WORKS LIMITED.

Woodley near Stockport [England], February 29, 1904.

[THE action above referred to related to an alleged infringement of tire patents owned by the Dunlop company. In the King's Bench division of the High Court, Mr. Justice Buckley, on February 25, granted an injunction to restrain the defendant company from making pneumatic tire covers with four thicknesses of cord in the edge, instead of wires as used in the Dunlop-Welch attachment.]

DEATH OF WILLIAM R. GRACE.

WILLIAM R. GRACE, founder and head of the house of W. R. Grace & Co., of New York, Lima, and Valparaiso, died at his residence in the first named city on March 21, never having rallied from an attack of pneumonia he suffered last December. Mr. Grace had been prominent commercially and politically in New York for forty years. In addition to building up the business which made him a very wealthy man, he twice filled the office of mayor of New York, while his activity in political affairs gave him an influence even in the national campaigns of the Democratic party, with which he was affiliated. He first arrived in New York in 1846, a runaway lad of 14, though his family, in County Cork, Ireland, were people of position and substance, and began life here as an errand boy in a small shop. His first career in New York was brief and uneventful, but later he returned to the city and established an important business which resulted in his leaving a fortune estimated at many of dollars. He was, at one time, the most extensive importer of India-rubber into the United States.

THE LATE WILLIAM R. GRACE.

About 1850 Mr. Grace visited the west coast of South America where, at Callao, Peru, he found employment with the firm of John Bryce & Co., ship chandlers, afterwards becoming a partner in the firm, which still later became Grace & Co. with branches at Lima and Valparaiso. This firm did a general shipping and trading business and was enormously successful. It was in 1865 that Mr. Grace returned to New York and founded the house that bears his name. Branch houses were established in San Francisco and Brazil, in addition to the establishments already successful on the west coast of South America.

From the beginning, the importation of rubber was one of the most important items in the business of the new firm, and this grew, as the rubber business developed, and as Mr. Grace reached further and further into South America. From the early seventies until 1886, when W. R. Grace & Co. began to draw out of the rubber business, by far the greater portion of the crude rubber coming into New York came to that firm. It is estimated by a surviving member of the firm that at least 75 per cent. of the South American rubber imported between 1880 and 1886 was consigned to W. R. Grace & Co. "We frequently imported," said this informant, "from $8,000,000 to $10,000,000 worth of rubber per year, and I remember that in 1885 we received $844,000 worth of rubber from Pará on one ship."

The rubber business of the concern became so important that in 1882 Mr. Grace sent Richard F. Sears—a man who had begun with the firm as an office boy and worked himself up to an important position—to Pará, who there established a branch house under the name of R. F. Sears & Co. This house did a large business and it was followed in 1883 by a similar branch at Manáos, the necessity of being represented further up the river having been made apparent. For this purpose J. Alvin Scott, another employé of the New York office, was sent out and the new firm was called Scott & Co. In a year or two, when it became necessary for Mr. Scott to leave the climate of the upper Amazon, the name of this branch was changed to the Manáos Trading Co.

About this time much of the South American business of W. R. Grace & Co. and almost all of its rubber business was under the immediate direction of Charles R. Flint, who was then a member of the firm, having an interest in all of its South American branches. Mr. Flint's connection with the firm was interesting. He entered the office in a minor capacity in 1871, and speedily rose to the position of bookkeeper. While in this position he did something one day which displeased Mr. Grace, and was discharged. Through the persuasion of Mrs. Grace, who knew Mrs. Flint, and the influence of young Flint's father, who was a friend of Mr. Grace, he was taken back as bookkeeper. Later he became a buyer and an assistant manager, and then investing some money in the firm became a partner and acquired an interest in the Chilean and Peruvian branches. After 1880 these branches prospered exceedingly, and when Mr. Flint drew out of the firm, in 1886, he was a rich man. In fact, he received for his interest $1,000,000.

Mr. Flint's withdrawal and the establishment of the firm of Flint & Co. was practically the ending of the prominence of Mr. Grace in the rubber business. Mr. Flint withdrew for the purpose of taking over the rubber business of the firm, and while W. R. Grace & Co. continued to import in considerable quantities up to 1888, it taking that long to get their business transferred, it has been almost entirely out of the trade ever since. With the firm of Flint & Co., Mr. Grace never had any connection, nor had he any other connection with the rubber business after the transfer was made.

The withdrawal of the firm from the rubber business necessitated the liquidation of the firms of R. F. Sears & Co., at Pará, and the Manáos Trading Co., at Manáos, as branches of the firm of W. R. Grace & Co., and this was done as soon as their business could be transferred to the representatives of the firm of Flint & Co.

During his enormous transactions in the rubber trade, Mr. Grace was almost universally successful, and an important part of his fortune was due to it. He early recognized the growing importance of rubber to the industrial world, and he did everything in his power at all times to stimulate the South Americans to extend their gathering operations. He recognized further that the more rubber that was gathered and marketed in the United States the greater would be the demands and ability to pay of the South Americans for our goods. Mr. Grace could be correctly classed as the first great promoter and encourager of the rubber importing business in the United States. His houses will be continued for the present by his brothers and sons.

RUBBER PLANTING IN CEYLON AND THE MALAY STATES.

As Seen by The Editor of "The India Rubber World."

FIRST LETTER.

Crossing the Atlantic.—English Manufacturers and Ceylon Rubber.—On Board the *Himalaya*.—Stromboli.—Port Said and the Suez Canal.—The Red Sea and Aden.—Beautiful Ceylon.—At the Galle Face Hotel.—Singalese, Tamils and Chinese.—Quaint Customs.—Director Willis, of Peredeniya and Heneratgoda.—The Oldest Plantations of *Hevea*.—In a Bullock "Hackery" to Heneratgoda Gardens.

TO those who are interested as to why I chose the Leyland liner *Devonian* to carry me across the Atlantic at the beginning of my journey toward the Far East, I beg to explain that she is a big, roomy, seaworthy craft of 11,000 tons, that there were only six passengers all told, and although she carried some 800 cattle, they did not appear on deck, or at table, nor would one have dreamed of their existence, once they were driven aboard. The ten days that were occupied in crossing, spent chiefly on the promenade deck playing quoits with the ship's doctor, put me in fine trim for the brief view of Liverpool and London that I had before the alleged *train de luxe* bore me to Marseilles, to join the P. and O. steamship, the *Himalaya*. My stop in England was only long enough to allow me to see a few of the leading rubber manufacturers, and get their ideas as to the value of the new Pará rubber that Ceylon planters are sending to that market.

One who has probably used as much of this rubber, or more than any other, summarized his experience as follows: "It shrinks on an average about 1.4 per cent. I use it successfully in all grades of fine work, including cut sheet, but do not like it for cements. It stands all tests after vulcanization—compression, stretch and return, oils, etc., just as well as fine Pará, and is perfectly satisfactory."

Another detailed the results of his own experiments thus: "This is a general summing up of the practical results, obtained from approximately 2 tons, from about 20 different plantations. The irregularity in quality is very great, varying from tough elastic gum, apparently equal to Manáos Pará, to soft sticky, short rubber, with little more elasticity than recovered rubber. This irregularity I find in all the forms of pancakes, whether thick or thin, translucent or opaque, except so far those which have been smoked; which, whether owing to the smoke or some other reason, have in the lots (from 3 separate plantations) which I have tested, proved even in quality throughout. I have been favored by one plantation with unsmoked samples (separately treated and marked) from 18 year old trees, and from young 5 year old trees. Each of these samples proved regular throughout, but the quality was very different, that from the old trees being tough and very elastic, while that from the young trees was soft and green. It appears to me, therefore, probable that the irregularity I have noted in the quality of shipments may arise from the varying ages of the trees, and that until the trees have reached absolute maturity, the *latex* of one season's planting should not be mixed with that of younger or older trees, but that each year should stand on its own merits to attain regularity in quality. The smoked samples may have come from old trees only, and the smoke perhaps had nothing to do with the quality. This want of regularity utterly shuts out Ceylon rubber from fine work, such as thread, cut sheet, bladders, etc., and as the strength of a chain is but that of its weakest link, it cannot at present for general work be classed higher than the good mediums. For the special purpose of making cement, however, it has found a place for itself on account of its extreme cleanliness, and the very convenient form of the pancakes in which it is shipped, practically ready for the naphtha bath. I believe in a great future for rubber planting, properly carried out. It might be done by the government forest department, and the trees rented when old enough."

Thus the only "out" about the rubber from the viewpoint of the user seemed to be the presence of immature, or partly cured gum, something to be expected when the fact is remembered that the plantations are young and the planters without long experience in gathering or preparing for market. The added fact that about 40,000 pounds are expected from the East this year, and that it readily brings the highest price in the market, led me to believe that I had before me a most interesting series of plantation visits once I should reach Ceylon and the Federated Malay States.

As I said, therefore, I took train to Dover, crossed the channel, landed at Calais (so called from the way they handle one's luggage), shivered all the night in the absurd little French *train de luxe*, and finally, arriving at Marseilles, stepped aboard the steamer that was to be my home for nearly three weeks. In due course we left the granite quays, the shipping, and the splendid limestone cliffs of the French port behind, and settled down to the Mediterranean trip. We passed through the straits of Bonifacio in the night, so that I had no chance to observe, or photograph, and the next morning were out of sight of land. The day following we all started in to get acquainted. I was the only American aboard, the major part being English people who had interests in India, Ceylon, or Australia, and some even were going beyond to Hongkong and Yokohama.

I had thought to do some writing on this voyage, but some kindly soul put me on the "amusements committee," and what with tournaments for deck quoits, cricket, ball, needle and cigarette races, etc., not to speak of two concerts, my time was pretty well taken up. My revenge came with the concerts, however. I made a speech at each, relating various well known American stories as personal experiences, and they were most enthusiastically received. As the British are firmly convinced that all Americans are speech makers, it is well for those who propose to travel with them to prepare to be called upon.

On the night of November 21 we had a splendid view of the volcano of Stromboli, which gave us a veritable special exhibition. The night was moonless, and the sea as smooth as glass. About 9 o'clock we caught the first red glow of the crater, and two hours later were near enough to dimly discern the outline of the cone shaped island mountain, and to see plainly the red lava torrents that tumbled down its sides and were quenched in the sea. We all staid up until the island was lost to sight, and left the deck only when a faint reflection on the gathering clouds was all there was left to us of one of the most impressive of sights.

We passed the straits of Mycenae so early in the morning that none of us were up, and on Monday saw Crete dimly in the distance. By this time the boat had developed a pretty fair roll, but few were ill, and the deck games went on—that is, for the men. On Tuesday noon we were behind the breakwater at Port Said and surrounded by coaling scows, crowded by

dirty Arabs who did the coaling with baskets. As the air was full of coal dust, a half dozen of us secured a boat and went ashore, spending the afternoon in roaming the sandy streets, followed by a crowd of beggars, jugglers, pox-pitted street venders, sellers of indecorous photographs, and all of the riff raff of the nastiest of all the cities of the Orient.

Port Said is built on soil chiefly sand that was dumped there during the excavation of the canal. It is a busy bustling place, due to the constant arrival and departure of steamers. It has a fair harbor made by two breakwaters that extend out into the shallows, one 7000 feet, the other 6000 feet.

We expected to get away early the next morning, but the mail from Brindisi being late, it was 4 o'clock in the afternoon before we entered the canal. According to rules, we steamed at four miles an hour, tying up to the bank when another boat was met. As we passed by three during the night, this occasioned quite a delay. It was quite cool, and a light overcoat was

IN THE SUEZ CANAL.

necessary after the sun set, but we did not stay long on deck as both sand flies and moquitoes were quite abundant.

In the light of our own American canal projects, it is interesting to remember that the Suez plan was entertained and dismissed as impracticable by Napoleon I, who was advised by his engineers that the Red sea was 33 feet higher than the Mediterranean, and later when M. de Lesseps had proved that the difference in levels was but six inches, such an eminent authority as Robert Stephenson declared the plan to be commercially unsound. There was also a rival plan brought out for a 250 mile canal from Alexandria to Suez. Nevertheless the great work was completed. It is 100 miles long, only about one-quarter of it being artificially made, the rest traversing natural lakes such as Bitter Lake and Lake Timsah. The plan of the canal was for a depth of 26 feet, the bottom of the ditch being 72 feet wide and the top about 300 feet. This was carried out in places, but where the digging was especially hard it is somewhat narrower. The canal shows a slight current, and slowly though the boats go through it, there is a constant crumbling of the sandy banks so that a force of steam dredgers are employed keeping the channel clear, nor is this work allowed to flag for an hour.

The next morning we were still hemmed in by sandy banks and the scenery was not inspiring, being varied only by an occasional station about which clustered a few lebec trees, the big dredges and an occasional native boat with its huge yards and dingy sail. Passing both the old and the modern cities of Suez, we left the canal, and were in the gulf of Suez. Here the water was of a marvelous blue, the sun brilliant, and the far off, lofty sand dunes, scored and seamed by wind and rain, showed wonderful effects in yellow, brown, violet, and purple. Here we began to get the warm weather. With Asia on our left, Africa on our right, and both in sight, a smooth sea and blazing sun, white flannel and duck suits soon appeared, the *punkahs* were started in the dining saloon, and the whole of the deck shaded by both top and side awnings. Wind scoops were also placed in the open ports, and we felt at last that we were in the tropics.

The next point of interest to be noted was the Daedelus shoal, from which our Captain Broun once rescued 180 souls, who, escaping from the wreck of their vessel, were gathered in a shivering crowd waist deep in water.

We had a further evidence of the genuineness of the hot weather the next morning at 3 o'clock, when the order came to close the ports as the water was slopping into the cabins. How most of them stood it I don't know, but I took a blanket and went on deck, and even then it was stifling. At daybreak we passed the "twelve apostles," a dozen big rocks rising abruptly from the sea, a grim weather beaten row. It was near here that the Turkish government, after much pressure, erected fine lighthouses furnished with the latest illuminating devices, but after keeping them lit for two weeks, the lights went out and not a glimmer have they shown since. As navigation is a bit perilous hereabouts, and mariners need the lights, it is just as well perhaps that I did not make careful note of the quartermaster's opinion of the unspeakable Turk, given as he told me the story.

The days were now long, hot, and a bit monotonous. Shut out as we were on the promenade decks by canvas walls, the peeps that we got at the sea showed a glare of light that was almost unbearable. The only relief was when a sudden drenching shower obscured the sun and we saw mountainous islands, distant peaks, and still more distant ranges. We saw however, the

PORT SAID WATER FRONT.

THE AMUSEMENTS COMMITTEE.
ON H. M. S. "HIMALAYA."

volcanic island Jebel Tair, and later Mocha, Mt. Sinai having been passed in the night. Then with a glorious setting of the sun over Somaliland, we passed through the straits of Bab-el-Mandeb, by the barren island Perim, and the next morning cast anchor in the harbor at Aden.

It must have been 2 o'clock in the morning when I awoke and found that we were at anchor. The sound that brought me to a sense of my surroundings, and the insufferable heat of the cabin, was the chanting of a gang of coolies who were warping a huge freight scow up to our steamer. Their song was the iteration of two phrases that sounded like "Esco *darn* ye! Perri go *darn* ye!" with each "darn" they all gave a pull. Beside this, there was a constant chatter from a half hundred boatmen that drove me on deck, where wrapped in a rug, and lying in the scuppers, I got a few more winks. Aden is as uninteresting as it is unhealthy. It is well called "the white man's grave," as hundreds lie buried on its rocky slopes.

BREAKWATER AT COLOMBO, CEYLON.

It is built on a flat sandy treeless plain, hemmed in by hills arid and barren to the last degree. It rains here regularly once in three years, and the water is stored in huge tanks five miles away up in the hills. Anyone who wishes to enjoy a long cool drink, and then another, should seek this thirstiest of all thirsty spots. It was here that the passengers whose destination was India were transferred to another steamer. And sorry we were to have them go, for many friendships had been formed that were of the sort that should continue.

Here left too, a young man who had not only been my partner at deck quoits, but who had given me much information about America. Shall I ever forget the evening, just after our excellent course dinner, when he said to me, with the kindest of intonations:

"Don't you miss the sweets [candy] between the courses?"

"What sweets?" was my bewildered query.

"Why, you know in America, at a course dinner, they serve sweets after the soup, and the fish, and the entree, and right through the dinner."

I had no vivid remembrance of that custom myself, but his faith in the exactness of his information was so great that it would have been a sin to upset it, so I agreed that I was pining for chocolate creams after the consommé, and molasses candy as a chaser for the fish, and it made him my friend for life, for which I am exceeding glad, as in spite of that one absurd idea, he was one of the finest chaps I ever met.

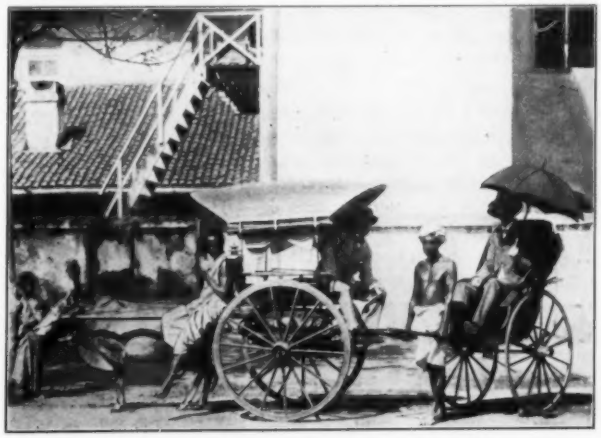
Speaking of the people one meets in distant lands, it is sad to say that one's own countrymen are often the biggest freaks. I met one of the freak sort later. He had not been in the smoking room ten minutes before he had told his whole history, and got every Briton and European there white hot by his comparisons, invidious and startling. In the midst of it I was pointed out to him as a fellow countryman, and he tried to get me into the fight, but I balked. Then he started in to impress me with his importance:

"I come from God's country," he said, "but I've been all over everywheres. I used to be consul at A——. I lecture, too. When I was consul at A—— I often used to go aboard a man-of-war and lecture, sometimes for two or three hours, and I always got seven guns; what do you think of that?"

"Mighty poor shooting, so far, but they will get you some day," I said with conviction.

After leaving Aden I was able to secure an upper deck cabin, which was much cooler than those either on the main or spar decks. Now that we were in the Indian ocean the sea grew much smoother, and early in the morning, after a salt water bath, the men promenaded the deck in pajamas until 8 o'clock, after which ordinary clothes were required.

We now began to feel the breath of the monsoon, while the water took on an even bluer blue, and flying fish in shoals fled to right and left from the onrushing ship. The heaviest sort of showers also began to come with more or less regularity, the ship's officers came out in white duck suits, prawn, fish, and other currys appeared at dinner, and we *knew* that we were in the tropics.



BULLOCK HACKERY AND RICKSHAW, COLOMBO.

CATAMARAN WITH SAIL, CEYLON.

On the evening of December 5 we sighted Minecoi island, a low lying circular bit of land crowded with graceful cocoanut palms, and a well known copra producing place. On the day following, at 1.15 in the morning, we passed behind the great breakwater and dropped anchor in Colombo harbor, in the midst of a great fleet of passenger and tramp steamers of all nations, native boats, lighters, etc. Most of the men aboard were on deck, although pajama clad, and as the coaling was soon to begin, I went ashore, passed the little black customs inspector without difficulty, and, getting in a jinrikisha, was soon at the Galle Face Hotel and sound asleep in a big wide bed that seemed delightfully steady when contrasted with even the comfortable berths of the *Himalaya*.

It may perhaps be well just here to refresh the reader's knowledge of Ceylon with the following facts. The island lies south of India proper, and is 271 miles long and 137 miles broad, and contains about 24,700 square miles. It has under cultivation, or used for pasture, some 3,500,000 acres—more than a fourth of its area. Of this about 520,000 acres are devoted to rice and other grains, the next largest planting being tea, of which there are about 400,000 acres. Other important products are cocoanuts, spices, coffee, sugar, cacao, tobacco, essential oil grasses, etc.

The population of the island is about 3,500,000, of which less than 10,000 are Europeans. The majority of the natives are Singalese, of whom there are over 2,000,000, the other races being Tamils (of whom there are nearly a million), Burghers, Eurasians, Moors, Malays, Veddahs (aborigines), and so on.

The island has an excellent government of the paternal sort, administered by a governor who is appointed by the king of England. He is assisted by an executive council of five, but has power to overrule their advice. There is also a legislative council of nine, including members of the executive, and together with eight unofficials appointed by the governor, representing the mercantile and planting interests and the native communities.

The island became a British possession in 1795. Prior to this the Dutch, who had held it for 138 years, had wrested it from the Portuguese, who ruled it for 141 years. Interesting reminders of both of these conquests are found in the high sounding Portuguese names that many of the Singalese bear, and in the Burgher types which remain quite Dutch both in name and appearance.

Neither the Dutch nor the Portuguese had ever conquered the whole of the island, which was accomplished by the British in 1815. Since then there have been a few rebellions, which, however, were easily suppressed. During the last one, in 1848, some 2000 up country Singalese were put to flight by 30 Malays who wore the British uniforms, a proof that the ancient warlike spirit of the Kandyans is practically extinct.

My first task after I was comfortably settled at the Galle Face was to buy a sun helmet, or *topee*, which I was lucky enough to find in one of the native stores that occupy the ground floor of the hotel. There are two dangers against which visitors to this part of the world must guard most carefully; one is exposure to the sun, and the other a sudden chill. In no part of the world, if reports are true, is the sun so deadly as here, but the danger may be reduced to a minimum if one will only listen to the advice of the older residents, and take reasonable precautions. A pith sun helmet is indispensable, as straw or felt hats are sources of danger, and a cap is worst of all. In addition, one should at first carry an umbrella as well. Nor is the danger present only at midday, or when there are no clouds. It is practically as bad at 7 in the morning, and when the sky is wholly covered with clouds. The whole habits of the dwellers here—that is, the Europeans, speak of this danger. Men and women wear sun helmets and carry sun umbrellas, while broad verandahs and close lattices guard the houses. Even the railway carriages have, in addition to curtains, visor like projections to keep out the searching rays of Old Sol. There have been cases even of sunstroke through the eyes, from the intense glare reflected from white roads or from the water, while a single shaft of sunlight, entering a crevice in a shutter, and falling on a man's temple, has been known to result fatally.

STREET SCENE IN COLOMBO.

BANYAN TREE, CEYLON.

PLANTAINS, CEYLON.

Where the heat is so great, it seems almost absurd to talk of chills, but when the sun goes down, and it still remains so hot that collars wilt, and the whole body is wet with perspiration, there comes that danger. The breath of the northeast monsoon, the regular wind of the winter months, while not cold, has brought on many a fatal chill, and resulted in fever and death. Hence most of the Europeans wear flannel bands about the abdomen (cholera belts they are called), and are very careful not to sleep in a draught, or to cool off too suddenly when very warm.

The natives, on the other hand, seem to be almost invulnerable both to the sun and to the "'soon." They go about bareheaded, and almost barebodied, and sleep when and where they will, and rarely suffer from such exposure.

Equipped though I was to stand the heat, I was not proof against surprise, nor the delight that I felt when I saw standing in the hotel lobby my good friend, Henry M. Rogers, of Boston, one of the directors of the Revere Rubber Co. He did not see me, and as my sun helmet would be a sort of disguise, I went up to him, and said:

"Do you wish a guide, sir?"

"No, I thank you," he responded politely.

"But you do!" I insisted; "You are lost now, and don't suspect it. I will not only guide you for nothing, but be glad to pay for the privilege."

I saw a gleam of recognition come into his eyes, as he said: "My dear boy, the rubber trade of the United States sent me over here to watch over and guide you. It is you who are lost, and I am delighted to find you."

Then we had a love feast, and instead of feeling far from home, kindred, and friends, it seemed as if the miles between Ceylon and the States were few, and most easily annihilated. At the same time, it did seem a bit unusual that we two, starting from the same city, and circling the globe in opposite directions, without any knowledge of the other's absence from home, should meet as we did. It was also very jolly.

After proving to a score of Mohammedan merchants who haunt the hotel that I desired to buy no jewelry, silks, curios, or unset stones, and threatening the native tailor and shoemaker with my umbrella, I had a chance to look about. The hotel is beautifully situated on the seashore, its courtyard crowded with cocoanut palms, its broad verandahs, latticed blinds, and high ceilings making it as cool as one could expect in so torrid a clime. It was impossible for me to communicate with any of the planters that day, so I gave myself up to the pleasant task of watching the strange people that surrounded me. For example, a Hindu juggler, with the inevitable native flute, and basket of cobras, invited me out upon the lawn to view his magic. I thought it worth a rupee to see the "mango trick" and was not able to detect any fraud in the sleight of hand by which he apparently planted the seed, made it sprout, and within two or three minutes grew a pretty shrub more than two feet high. By encouraging a rival of his, I also saw a lively little mongoose attack and kill a huge ratsnake, but no inducement was effective in getting him to trust his cobra within reach of its traditional enemy.

Just as the exhibition ended, along came a steamer friend, with the information that he had engaged a gharry to take us out to Mount Lavinia, a favorite shore house some three miles away. As it promised to give me a view of the country I gladly consented, and we were soon bowling along over the fine roads, drawn by a very diminutive but energetic pony. On the way we stopped at a Buddhist temple, and, under the guidance of a priest who spoke excellent English, saw the great image of Buddha, in the forehead of which is set a sapphire as big as a teacup, which glows and sparkles with a most uncanny luster when the room is darkened.

We also saw the small temple, where securely sealed forever from human sight are the sacred books engraved on plates of gold and silver. The doors to this little building, by the way, were walled up some 1100 years ago. As a special favor, the priest showed us a footprint of the god in solid rock. To my mind it didn't do Bud justice, as the pedal extremity was exceeding flat, and the toes looked as if they might have been whittled out of soft pine by a very poor whittler. The size of the foot, however, was all that could be desired by any believer.

He also showed us a series of striking pictures, illustrating the various types of torture in the hereafter for those who killed any living thing here on earth, even to the insects that make the fine toothed comb a necessity. I was surprised to find among them special tortures for those who fish and hunt.

In the temple enclosure we were at peace, but once outside a half hundred beggars, big and little, crowded about us, following closely down the narrow lane towards our carriage. I was afraid some of them would give me of their various skin diseases, so I hired the priest for a rupee to keep them all at a distance until we were on our way out, which he did.

The drive to Mount Lavinia was so full of novel scenes that it is almost impossible to select even a few that are typical. Through the narrow streets, crowded with native houses, from

which swarmed half clad men and women, and nude children—meeting Tamils, Singalese, Chinese, Moors—indeed, all types of black and yellow men, turning out for carriages of all sorts, jinrikishas, bullock hackeries, and huge two wheeled thatched-roof wains; getting a glimpse of a rare tropical garden, then of a squalid Tamil hut; by Chinese graveyards, European villas, cocoanut plantations, banana patches—all over a road of good hard "chabook," until we drew up at the little hotel—crowned height of Mt. Lavinia. Here we had tiffin, with coffee, out on the lawn under an umbrella like tent, where we lay in reclining chairs and watched the sapphire sea studded with native fishing boats, their huge brown sails swelling with the breath of the northeast monsoon. It was scorching hot in the sun, so we waited until late in the afternoon, and drove slowly back to the hotel.

NATIVE METHOD OF TREE CLIMBING.

I was awakened early next morning by my black Tamil bedroom man, who brought coffee and bread and fruit, and informed me that "Master's" bath was ready. As I pulled the mosquito curtains aside, and got slowly out of bed, I was startled by a flapping of wings, and a very black and impudent crow alighted on the window sill, his eye on the tray of food, and waited impatiently for me to go to the bathroom. On the tiled roof opposite were half a hundred more, awaiting the results of his investigation, so I took my coffee then and there. On my return not a crumb of food remained, much to the disgust of a couple of sparrows who were investigating my belongings with all sorts of profane comments. They left, however, when the lizard began to sing, and I didn't blame them, for however common and useful the house lizard is in Ceylon, and even if it can catch more flies and mosquitoes than anything else, its song is not real music, and if you try to stop it, by throwing a boot, the tail drops off, greatly injuring its looks.

Very early in the day I was introduced by my request to the *dhoby* man, who is the washerwoman of the East. He takes one's clothing out to the nearest stream, wades into the water, and pounds the dirt out on the rocks, then partially dries and irons them. He also has a habit of infesting them with a parasite which results in the "dhobies' itch." I had a mixture of starch, boric acid, and powdered zinc, which I desired to try on this parasite, and although I told him when he took the contract to be sure to give me my money's worth of germs, I didn't get one, and I am sure he had some, for he was always scratching. I fancy he delivered mine to the chap who had the room next to me, for I used to hear him scratching and "saying things" when night had fallen, and the "spicy breezes blew soft o'er Ceylon's isle."

The next morning I called on Mr. Ferguson, of the *Tropical Agriculturist*, who for many years has been a high authority on tropical planting. To my regret he was absent, being then in the United States, and, his nephew informed me, likely to call at my New York office at any time. I learned, however, that Director J. C. Willis, F. L. S., of the Royal Botanical Gardens, Peredeniya, was then in town, and at the hotel familiarly known as the "G. O. H.," meaning the Grand Oriental Hotel, where I found him, and was able to secure his assistance in planning my visit to the typical *Hevea* plantations.

Prior to my visits to the plantations, in talking to those who were supposed to know about rubber plantations, there was a great unanimity of opinion as to the profits shown. One man, not an optimist either, said that in two cases he knew of, the first year's tapping had paid for the whole of the original investment, and that the second year's production had shown a profit of 120 per cent. He was not quite sure of the age of the trees when first tapped, but said they were certainly not ten years old.

He said that when the planters had in view any new product that looked pretty good, the natives always planted a little of it, so that when harvest time came, they could secure a little from their own plantation, which, added to what they were able to steal from the white planters, often made a very good showing. That they were already planting the *Hevea* in a small way, and would doubtless later do more or less night tapping on the plantations of the white men. Of course once they have the rubber, it is impossible to prove title to it.

In chatting with Director Willis, it was easy to see that he was enormously interested in the success of the *Hevea* experiments in Ceylon, and indeed in the whole of the East and doing much to further them. That the whole of the tropical world in the East was fully alive to the opportunity that rubber offers, he acknowledged. The botanic gardens at Peredeniya, and the plantations as well, are constantly receiving visitors from Java, Sumatra, French Indo China, Siam, and similar countries, who are investigating the subject, and often trying to contract for seed on the spot.

As the oldest planting of *Hevea* rubber in the island is at Heneratgoda gardens, which is one of the government gardens, under the direct charge of Mr. Willis, he thought that my plan to go there first was a good one, and at once gave me a letter to the contractor in charge, Mr. William Perira.

ONE OF THE ABORIGINES, CEYLON.

On the following morning I therefore had coffee at 4.30, and took a "rickshaw" to the railway station, and ere long was speeding along the seacoast toward my destination. The rising sun disclosed long stretches of swamp and jungle, stretches of sandy shore crowded with cocoanut palms, native villages just awakening, fishing villages where the whole population were engaged in pulling in the nets that had been filling up all night, and in time we reached the railway station at Heneratgoda. Here as I could get neither gharri nor rickshaw, I was obliged to charter a bullock "hackery."

A NEW LAW OF VULCANIZATION.*

WHY one kind of rubber is stronger than another which has the same chemical constitution, why some kinds vulcanize under conditions in which other kinds will not vulcanize, why rubber vulcanizes at all—we do not know. We know the facts, but we do not know the reasons for them. We observe numerous chemical reactions, and from our observations deduce the laws which govern them—that is to say, the circumstances under which they take place. But "the true nature of chemical force or affinity is still a secret to us, as is the nature of the universal force of gravity." Men of learning in all ages have sought by diligently observing facts to discover the laws of nature. This field is so vast that he must be bold indeed who would seek to penetrate the veil that conceals from us her secrets, or to do more than from observed facts deduce the ways in which nature acts. "The laws of nature are only a summary of observed facts." "It is the object of chemistry as a science to know the properties of substances and the relations which exist between them." Why substances have their respective properties, and why those relations exist, it is not the object of chemistry to discover.

Any new theory or process of vulcanization should be tested by a large number of experiments under varying conditions before it can be accepted as valuable. One or two experiments can by no means be sufficient to establish the value of such theory or process. The union of rubber and sulphur is a chemical process and proceeds in accordance with well established rules applicable to chemical processes in general. Such rules are the result of deductions made from a very large number of observations by men of great experience, and have been universally accepted as correct because as yet no exceptions have been found that would impair their value.

These observations seem necessary, as the theory concerning vulcanization which will follow these remarks is believed to be for the first time made public. The facts may possibly be known to some observers, but a careful examination of authorities reveals no reference to them. The theory itself has been tested by a large number of experiments during a great range of vulcanizing temperatures without finding any variation whatever in the rule—which is as follows: *The vulcanizing effect of any particular vulcanizing temperature is the precise complement of the vulcanizing effects of any other vulcanizing temperature, or combination of temperatures.* That is to say, if a rubber compound be submitted to any particular vulcanizing temperature for any proportion of the time required to vulcanize that compound at that temperature, the vulcanization may be completed at any other vulcanizing temperature, if submitted to it for the remaining proportion of the time that may be required at the latter temperature.

Thus if 30 minutes be required to vulcanize the compound at one temperature and 90 minutes at another, the compound will be equally vulcanized, whether it be vulcanized at either of those temperatures in the *required time*, or whether it be submitted ¼ of the time required at the one temperature and ¾ of the time required at the other temperature, or ¾ (or any other percentage) of the time required at the one temperature, and ¼ (or the remaining percentage) of the time required at the other. No difference can be perceived in the vulcanization whether it be effected part at one temperature and part at another, or whether it be effected entirely at one temperature.

From this rule it results, that *it matters not to what vulcanizing temperature or combination of vulcanizing temperatures the rubber compound may be submitted, the result will be vulcanization, provided the compound be submitted for a proper length of time.*

Though it is believed that this rule is now made public for the first time, it has been known in effect to the practical rubber manufacturer since the manufacture of vulcanized rubber goods began, for the length of the process has always been adapted to a combination of vulcanizing temperatures whether the steam or the dry heat process was used. This adaptation is necessary. For, as is well known, it is an impossibility to vulcanize by either of these processes on a large scale at fixed temperatures from the beginning to the end of the process. In the laboratory, however, where only small samples are concerned, there is no difficulty in doing so. There has therefore been no difficulty in establishing the correctness of the rule by a large number of laboratory experiments, each of which has proved entirely successful and absolutely in accordance with it.

Formulas are used in the manufacture of vulcanized rubber goods in but two steps of the process—for the compounds, and for the final or curing step. For the compounds, formulas are necessary in order to secure uniformity in the goods, and in order that the finished product may be adapted to the purpose for which it is intended. These formulas are the result of experiment, and when once established are not readily changed by the manufacturer. If they were left to the judgment of the workman who for the time being weighs them for the succeeding steps, inextricable confusion would immediately result. The formulas for compounds must not only be carefully arranged, but they must be exactly followed. This is the one part of the manufacture in which under no circumstances, is there any deviation allowed. Not that compounds cannot be changed, for they are often changed. But this change is made only by the manufacturer himself or by the superintendent as the result of careful experiments. Many a factory has suffered heavy losses by apparently slight changes in the compounds which were thoughtlessly made.

In the final or curing step of the vulcanizing process, formulas are necessary in order to secure uniformity in the results. In the early stages of the manufacture this operation was left somewhat to the judgment of the workman, who based his judgment on an examination of samples withdrawn (in the dry heat process) from the vulcanizing chambers. But in recent years the formulas are not only strictly followed, but recording gages are used for the purpose of enabling the manufacturer to know that the exact prescribed times and temperatures have been followed. Such formulas are arranged with the object of completing the vulcanizing of the goods in the shortest time that will produce the proper results. They may, however, be greatly varied, but such variations cannot be left to the judgment of the operator except at the expense of uniformity in the result.

The following are examples of formulas that are used in the dry heat process. The first is as follows:

20 minutes from the closing of the vulcanizer until the temperature of the vulcanizing atmosphere reaches	200° F.
30 minutes to	210° F.
30 minutes to	220° F.
30 minutes to	230° F.
30 minutes to	240° F.
30 minutes to	250° F.

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30 minutes to	260° F.
90 minutes at	260° F.

The second formula, which is more generally used, is for a much slower operation, and is as follows:

30 minutes from the closing of the vulcanizer until the thermometer indicates	130° F.
30 minutes to	160° F.
30 minutes to	180° F.
60 minutes to	200° F.
60 minutes to	215° F.
60 minutes to	230° F.
60 minutes to	240° F.
60 minutes to	248° F.
60 minutes to	255° F.
15 minutes to	258° F. or 260° F.

These are the temperatures of the vulcanizing atmosphere—not of the goods themselves.

Each of these formulas is used in the curing of rubber boots and shoes, *and each produces the same vulcanizing effects.* It is safe to say that substantially all the rubber boots and shoes made in the United States are cured according to formulas practically like one of the two given above. As the value of such goods produced in the United States in 1903 was upwards of $45,000,000 the formulas must be very common and well known.

It is at once apparent even from a casual inspection of the formulas, that each is arranged to produce vulcanization through a combination of temperatures, and also that the two combinations are totally different. In the first the average temperatures are much higher than in the other, and the chief part of the vulcanization must take place while the temperature of the chamber is above 250°. In the second, as the operation ceases as soon as the temperature of 258° or 260° is reached, and as the rate of the union of sulphur and rubber rapidly increases with each increase of temperature and as rapidly decreases with each reduction of temperature, the chief part of the vulcanization must take place below the indicated temperature of 250°. It is probable that the effective temperature would average no higher than 238°, for the same goods are as well vulcanized in 3½ hours at 238° (that being the actual temperature of the rubber) as when vulcanized according to either of the two given formulas.

The fact that the same vulcanizing effects are produced by the use of two totally different formulas, each of which is made up from a combination of many various temperatures, is a confirmation of the law given above in this article, which has been established by direct experiment.

It is important that this law should become generally known among manufacturers, as there is always a possibility of improvement in a product when the laws governing its production are known. Too little attention has been paid in the past to seeking to discover the laws which govern the vulcanization process. Doubtless enough facts are already known from which several other general laws of vulcanization could be deduced if proper pains were taken to collate them. Dr. Weber has been almost the first to seek to generalize facts into laws. But notwithstanding his researches, the field is still large enough for a great deal of investigation. In fact when we consider the great number of different varieties and qualities of rubber and the fact that each of them must have its own proper treatment, the field seems so vast that we wonder if it can ever be fully explored.

The second given formula, in itself, contradicts a notion that prevails to some extent that rubber does not vulcanize below 239°—"the melting point of sulphur." If the bulk of the rubber boots and shoes in this country are vulcanized at an effective temperature lower than 239°, as would appear to be the case, it is difficult to see on what such a notion could be founded. The fact is that nothing could be further from the truth. It is even probable that the sulphur in a rubber compound does not melt below 248° F., the melting point of prismatic sulphur. But whatever may be the melting point, the fact that the sulphur is melted in the compound has not the slightest effect upon the union of rubber and sulphur. The rate of this union increases with each increase of temperature up to about 310° or 315°, after which the rate decreases, not actually but proportionately. Up to that temperature, the rate of the union increases not in a fixed ratio but in a constantly increasing ratio. When the temperature approaches and passes 239°, there can not be observed the slightest indication of any change in the rate of increase of that ratio. So when the temperature approaches and passes 248° there is not the slightest indication of any change in the rate of increase of the ratio. This statement has been confirmed by the result of a large number of vulcanizations of the same compound under identical conditions both at 238° and 249°, and at various temperatures both just below and just above each of those two points.

NOTE.—In response to many inquiries as to the authorship of this series of articles, we would say that they are from the pen of one of the best known rubber manufacturers in America and are the result of a great variety of experiments that are constantly going on in his works and under his personal supervision.—THE EDITOR.

PROBST'S LIFE SAVING SUIT.

THE life saving apparatus invented by M. Joseph Probst, of Geneva, Switzerland, is one by means of which each man becomes his own life saver. That is to say, it is a suit which, in case of disaster, the passenger can immediately don, with the assurance that, no matter how long he may be buffeted on the surface of the waves, he may exist without difficulty until picked up. The inventor has himself fearlessly demonstrated the utility of his invention by remaining in the water for a month, and by means of the food carried in the suit saving himself from starvation. His first experiments were made in the lake of Geneva, when he remained 15 days in the water to the astonishment of the people of the lake city. The costume is made of India-rubber, opens in the center, and is easily put on, and has nothing in its construction to confuse the wearer when trying to adjust the suit in moments of excitement. The legs and feet fit into trousers weighted at the ends, and on the outside are airtight pockets large enough to contain lamps, matches, food stores, a trumpet, and an instrument by means of which the attacks of predatory fish may be repelled. The dress is so buoyant that nearly half of the body remains above water and one can lie down or stand up in it.

M. JOSEPH PROBST, OF GENEVA, IN HIS LIFE SAVING SUIT.

THE INDIA-RUBBER TRADE IN GREAT BRITAIN.

By Our Regular Correspondent.

THE interesting paper on asphalt read by Mr. Sutherland before the Faraday Society and made accessible to the rubber trade in a contemporary forms a welcome contribution to the literature of the subject. The composition of certain mixtures or compounds well known in the insulated cable trade is only hinted at darkly, and it is possible that the author did not care to let the public too closely into his confidence. With regard to Callender's Cable Co., it has been generally supposed that they have a monopoly of the the product of the Trinidad pitch lake, from which their "Bitite" is made; on the other hand, it is stated in recent work on the chemistry of India-rubber that the Callender compound is made of stearine pitch, quite a different body. But dealing with the question of monopoly alone, it must be remembered that within quite recent times considerable deposits of bitumen resembling that of Trinidad have been discovered in the northwest of Venezuela, and I understand that they have been conceded to an American company. Pitch occurs in Great Britain only in small quantities, and nowhere else I believe than in the mineral vein of Derbyshire. In mineralogical works this substance is referred to as mineral caoutchouc, a name it hardly deserves, though its elasticity or rather plasticity is by no means inconsiderable. I don't think that it has ever received any practical application, the amount being too small in any one locality to make its collection worth while. There is good reason to suppose that it may have something to do with the occasional outbursts of fire damp in Derbyshire lead mines, but this is a matter which need not be discussed in this place. Besides Derbyshire, this mineral caoutchouc has been found in France and at Woodbury in Connecticut, but it cannot be considered as of more than scientific interest and need not detain us further. Mr. Sutherland thinks that a huge fortune awaits the discoverer of the perfect insulating material; from what I hear of a body known as Rupertite it would seem as if the discovery had been made. This body, the composition of which is known only to three persons, is made and used in one of our cable works as the ideal rubber substitute, not the first time by a long way that such a claim has been put forward.

MINERAL CAOUTCHOUC.

GENERALLY speaking things are not at all brisk, owing largely to the high price of rubber. The uncertainty of the market induces a Fabian policy on the part of buyers, who are disinclined to go beyond their immediate requirements. This is the slack season for the proofing trade, of which it is difficult to hear optimistic prognostications. Certainly Mandleberg's have declared a 20 per cent. dividend, but then the rainproof department is responsible for this. As regards the legitimate macintosh there does not seem to be anything to chronicle in the way of novelty or development. "With cheap rubber we might go ahead; as it is we can only jog along" is the answer to inquiries after progress. Then follows a series of uncomplimentary remarks on the iniquities of rubber merchants, who are considered primarily responsible for the present unsatisfactory position. As regards the mechanical rubber trade, in the north the continued depression in the cotton industry has undoubtedly proved a setback to business. However, those manufacturers who rely largely on the export trade say that they have nothing to complain of. Activity in naval circles occasioned by the war in the Far East will doubtless mean increased admiralty orders.

THE STATE OF TRADE.

QUITE a jubilant note was struck by Mr. C. T. Kingzett at the recent meeting of the Improved Golf Ball Co., Limited. This ball, which is of the rubber cored variety, naturally appeals to a large class because of its low price, being retailed at 1 shilling. Judging from what I hear in various districts, Mr. Kingzett's remarks were quite justified, and though of course the price may have a good deal to do with its general use, yet this factor alone cannot be held answerable altogether for the chorus of approval.

THE ELASTINE GOLF BALL.

IT being quite a long time since I had heard anything of Liberian rubber as an investment, I was interested to see the other day that the name of the company previously known as the West African Gold Concessions has now been changed to that of the Liberian Development Co., Chartered and Limited. While the main object of the company is the exploitation of the mineral wealth said to exist in the country, it has been thought that rubber offered a more immediate return, so a subsidiary company called the Monrovian Rubber Co. has been formed to purchase and work the Liberian Rubber Syndicate which has the right of collecting and exporting rubber for 20 years. In this subsidiary company the Dunlop company provide the working capital and the profits are to be divided equally between them and the Liberian Development Co. Sir Harry Johnston is managing director of the latter, and has formed favorable opinions of its prospects. He has despatched rubber experts chosen for their knowledge of mineralogy to the scene of action, and rubber is expected at the port of shipment by the middle of May. It is to be hoped that the double barrelled experts will acquit themselves creditably. I am afraid that a knowledge of mineralogy would not prove much of a testimonial for a managerial position in a British rubber works. It is stated that the chartered company is recognized by the Foreign and Colonial offices, though I doubt if such recognition will amount to much in the case of border raids on the company's preserves. It is now about 18 years since Mr. C. W. Meiter, of London, got a Liberian rubber concession, which I understand was never really worked. All I know about the Liberian Rubber Syndicate brought out by the new company is the exhibit of rubber shown at the stand of the Liberian republic in the late Paris exhibition. The samples of raw rubber were said to be odorless and prepared in a scientific manner by the syndicate's special process, which may or may not prove all that is claimed for it.

LIBERIAN RUBBER.

THIS show, the first of its kind devoted entirely to the motor car industry, was opened at the St. James Hall on March 7, by the Earl of Shrewsbury and Talbot, who is closely connected with the trade in his position as chairman of the Shrewsbury & Challiner Tyre Co., Ltd., of Ardwick Green, Manchester. Lord Shrewsbury spoke hopefully of the future of the British motor industry, saying that England owing to her laws had been greatly handicapped in the past compared with her continental competitors. Though he was not an advocate of racing for the future, he thought that the sport had been most useful in producing cars as light as possible with the best workmanship. Although most of the British and foreign makes of tires were to be met with up and down the hall on different machines, the only rubber manufac-

MANCHESTER MOTOR SHOW.

turers having stands were Messrs. Charles Macintosh & Co., Limited, David Moseley & Sons, Limited, and The North British Rubber Co., the Dunlop company, so regular at all shows, being on this occasion a conspicuous absentee. Macintosh's exhibit was an attractive one, though not comprising any completed tires. Inner tubes of red rubber, solution, millerain clothing, waterproof motor coats and rugs were prominent among the numerous accessories for the motor trade supplied by the firm. It may be mentioned that they make a specialty of re-treading motor tires, vulcanizing the new tread to the old cover. The North British exhibit is better described as that of Michelin & Co., as all, or at any rate the bulk of the exhibits were evidently from Clermont-Ferrand. The explanatory notices were mostly in French, a somewhat novel feature in a British show. Besides an attractive exhibit of accessories, the pyramids of tires comprised round and square treads, the non-slipping tread with steel inserts being prominent. Red rubber inner tubes were to the fore here, as also with Messrs. Macintosh and Moseley. At the time of my inspection the stand labelled the Seddon Tyre Co. was a blank, and the only other tire company exhibiting was the Shrewsbury & Challiner, who showed a special tire they have recently designed for motors. Apparently no patent rights are claimed for this tire, the advantages claimed for it being the superior mechanical attachment which allows of the tube being taken out easily for repairs. The company are large makers of wheels for various vehicles, and with tires attached these formed the main feature of their exhibit. I noticed a Mercedes car with violet colored tires of Continental make, but found on inquiry that the color was merely superficial and not indicative of any alteration in the make of these well known tires. The firm of Cottereau, of Dijon, France, was represented by their agents, Messrs. McNeill, Hutchinson & Barthwick, of Manchester, and the advantages claimed for the Sée non-slipping tread were set forth. This is a band of leather studded with metal, and covers the rubber tread entirely.

SAFETY APPLIANCES FOR MIXING ROLLS.

THE reference to this subject in Franz Clouth's book on rubber is of interest and suggests a few comments. I don't know whether there are any regulations on the subject in America, but in France, Germany, and Austria it is compulsory in rubber works to have safety mechanism attached to washers, mixing rolls, and calenders. In England no such law prevails and but little has been done in this way. Dr. Weber in the appendix to his book refers to the ordinary clutch and striking gear as being very inefficient in cases of emergency, and thinks that it ought to be superseded by some of the improved types on the market. It may not be generally known, but Messrs. Crossley Brothers, of gas engine fame, were at one period of their career makers of rubber machinery, and I understand that the subject of safety mechanism had their attention. Our rubber machinists have been by no means backward in the matter; indeed, to fill their foreign orders they have had to pay particular attention to it, with results that must be considered eminently satisfactory. For instance, Messrs. Iddon, of Leyland, and David Bridge & Co., of Castleton, are always prepared to fit such mechanism to machines of their manufacture where it is specified for, though the details of their methods are by no means identical. In some of our English rubber works the men engaged at the washing rolls use a wooden pole* in order to minimize any risk of accident, and really in these days of workmen's compensation, it certainly seems advisable for masters to see that any unnecessary risk is eliminated. It cannot be said that serious accidents are at all numerous, but still there are a sufficient number on record to make it evident that the continental regulations are not representative merely of arbitrary and unnecessary interference. I do not know what the feeling of our manufacturers is with regard to state interference in this matter, but the general opinion as regards the various restrictions under the Factory acts is that the trade is sufficiently hampered. The rubber machinists think that safety appliances should be universally used, but then they are hardly to be considered in the light of disinterested parties.

* The practice of using wooden poles in connection with any type of roll washer is far from being a wise one, as the wood is apt to splinter, and these splinters once bedded in the rubber are very hard to extract. As our correspondent indicates, however, the practice is not a general one.—THE EDITOR.

THE LAW COURTS.

THE appeal case of the Dunlop Rubber Co. *v.* David Moseley & Sons has attracted considerable attention, and not only because of the particular interests involved but also because the judgment in the defendants favor gives effect to a point of law which does not appear to have hitherto been thrashed out. The facts have been already referred to in the case of the trial before Mr. Justice Swinfen Eady, but may be briefly recapitulated. Messrs. Moseley manufactured the outer covers of pneumatic tires and sold these to persons who got the inner tubes and rims elsewhere, in order to turn out the complete article. The patent of the Dunlop company is for the combination of parts, and not for any part by itself, and judgment for the defendants was based on the fact that they merely made and sold the outer covers which they were entitled to do. Judging by the questions put to their counsel by the judges, the Dunlop case was much weakened by their not proceeding against any actual person who made up the complete tires proving definite collusion with Moseley's and marking them parties to the action. It was said by the plaintiffs that this was impossible, but the judges were evidently not of this opinion. It was not sufficient they said to show that instructions were issued in a catalogue showing how infringement could be perpetrated it was necessary to prove the act of infringement. The failure to do this proved the main stumbling block to the plaintiff's claim, though of course it is an open question whether an amended claim would have met with greater success.——The appeal case of the Dunlop company against The North British Rubber Co. also went against the plaintiffs, the arrangement come to between the defendants and Michelin & Co. of Clermont-Ferrand with regard to the manufacture and sale of Clincher-Michelin motor tires being upheld as within the rights of the defendants under their Dunlop license. With regard to the successful action brought by the Dunlop Co. against the Hyde Rubber Co., it should be noted that the defendants are a distinct firm from the Hyde Rubber Works, Limited, the successors of the Hyde Imperial Rubber Co.

SUBSTITUTE FOR INDIA-RUBBER.

DANIEL H. DUPONT-FRANKLIN (United States patent 746,689), produces a substance which he describes as resembling India-rubber, by mixing together coal tar and boracic acid dissolved in alcohol, boiling said mixture, and supplying oxygen thereto. As a specific example, he mentions the combination of 100 parts coal tar and 25 parts acid, boiling for a proper length of time, and introducing the same into a vessel heated to about 60° C., into which oxygen is introduced. To determine when the mixture has been boiled sufficiently, the vapors which arise during boiling are ignited, and the boiling is permitted to continue until a green flame appears. Instead of coal tar, tar of petroleum or other hydrocarbons may be used, and the boracic acid may be replaced by other acids.

SOME SUCCESSFUL MEN IN THE INDIA-RUBBER TRADE.

JAMES BENNETT FORSYTH.

IF any single rubber factory should be selected, to illustrate in its history the development of the India-rubber industry in the broadest sense, there could scarcely be an objection anywhere to giving the preference to the Boston Belting Co. The seal of that company bears the date 1845, but the business dates back, in unbroken succession, to the first important attempts to make rubber goods in this country, and their premises embrace the original building—one which possesses additional historic interest as having been the scene of part of Charles Goodyear's early work. But while entitled to the palm in respect to age, the company has never lost the spirit of progressiveness which started it on a career of success from its first adoption of the process of vulcanization, and in no other rubber factory have a greater number of practical processes and appliances been developed. This sketch, however, is not meant as a history of the company, further than outlining the connection with it of the present general manager, Mr. James Bennett Forsyth, covering a period of forty-one years, by the end of the present month.

JAMES BENNETT FORSYTH.

While the company has become known wherever mechanical rubber goods are used, the active head of the business, jealously devoted to its success, has not sought public notice in any way. Hence the portrait of Mr. Forsyth, presented on this page, is the first that has ever appeared in any journal, and the present sketch of his career is probably the first that has been seen by the rubber trade.

Mr. Forsyth was born in Brookline, Massachusetts, February 2, 1850, and six years later his family removed to Roxbury, where his father, William Forsyth, had charge of a department in the Boston Belting Co.'s factory. The son's health at an early age was such as to prevent his regular attendance at school, and the family physician advised that he be put at some light employment as a probable means of improving his health. Early in his fifteenth year, therefore, he was placed in the office of Mr. Merrill, clerk of the company at the factory, to assist him generally in the office, and to go to the postoffice and the bank. At that time John G. Tappan was treasurer of the company, and Charles McBurney the manufacturing agent, the company's store in Boston being conducted under the style of Tappan, McBurney & Co., selling agents. The superintendent was Robert Hale. It was a part of the duties of the young assistant clerk to go frequently through the mill, particularly in regard to goods to be shipped to the store, and after a time he asked permission of the superintendent to work in the mill when he could be spared from the office. Mr. Hale consented, and he worked for several hours each week, first in one department and then another as he chose, for a year or more.

On February 1, 1864, Mr. Merrill having been forced by illness to retire, his assistant was promoted to the office of clerk. Fourteen months later, he was made assistant superintendent under Charles McBurney, who had succeeded Mr. Hale, and on April 1, 1886, Mr. Forsyth became superintendent. Four years later he took the position also of manufacturing agent. These two positions he held until the spring of 1884, when he relinquished the work of superintendent, and in addition to manufacturing agent was made general manager of the company, and these two positions he has held until recently. At present, however, he devotes his attention to the duties of general manager, with the assistance of his brothers in other positions as mentioned further on.

Mr. Forsyth has contributed greatly and in very many ways to the success and prosperity of the company, both through his inventions and his administrative ability. His patented inventions cover many useful machines employed in the industry, and many important articles of manufacture. Several years ago it was stated that he had taken out more than 50 patents. A complete list of these is not now available, but a reference to the patent office records subsequent to the date alluded to shows that additional patents have been granted to him almost every year. They cover machinery for the making of rubber hose, for making and stretching rubber lined cotton and linen hose; rubber covered rollers for use in cotton, woolen, and paper mills, print and dye works, bleacheries, and so on; together with many others.

The family of Mr. Forsyth is of French extraction, existing for many generations under the name Forsath or Forsaith, which became Forsyth on the removal of a branch of the family to Scotland. Captain Alexander Forsyth, born in Ayrshire in 1689, removed to Boston, where he was married in 1715, and where for many years he was selectman and otherwise a prominent citizen. His son John also rose to many positions of public trust in Boston. Both eventually returned to Scotland, and died there. A son of the latter, born in Scotland, was Captain John Forsyth, of the British army, whose son William (born in Ayrshire 1807—died Boston, 1876) was the father of the subject of this sketch. He married Jane, daughter of Hamilton Bennett, Esq., of Buxton, England. They are survived by four sons, all connected now with the Boston Belting Co., as follows: James Bennett, general manager; John Hamilton, superintendent; Thomas Alexander, manufacturing agent; George Henry, assistant manager.

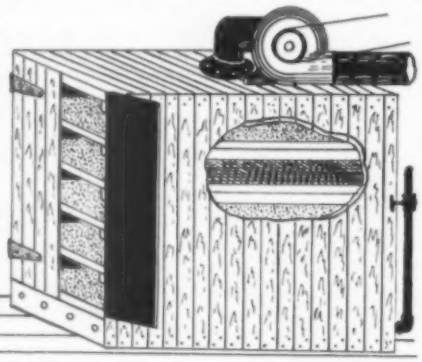
Mr. Forsyth's determination and patience are remarkable. As an illustration of these excellent traits it is necessary only to cite the historic suits against the city of Boston in defense of his company's water rights in Stony Brook. In spite of every and all of the ingenious devices that the best legal talent could bring forward to delay the issue and tire out the plaintiff, he held grimly on, and after more than a score of years of litigation, was triumphant. He is a tireless worker, and has a record of practical experiments in India-rubber and Guttapercha that would fill volumes. He is, however, the keenest

of critics of his own work and often has special tests of new processes or appliances going for years before he accepts or rejects the results that they develop.

Not only has Mr. Forsyth brought to a successful issue a host of experiments in mechanical rubber goods, to which he has rigidly held the production of the Boston Belting Co., but he has been interested in pioneering other lines by assisting those who had ideas but not the knowledge or ability to develop them. Thus it is a matter of history that his helpfulness was a factor in starting other lines like footwear, insulated wire, clothing, and surgical goods, etc., and made them successful much earlier than they could ordinarily have hoped to be.

SQUIRES QUICK DRYING APPARATUS.

ARTHUR C. SQUIRES, of Akron, Ohio, who is well known to the rubber trade, sends to THE INDIA RUBBER WORLD a pen drawing of a quick drying apparatus of his own design, which he has already installed in a number of American rubber factories. It is used for the drying of crude rubber that has been washed and sheeted as thin as may be. The dryer is a small room, 10 feet each way, the whole being lined with sheet iron. Instead of hanging up the rubber, it is folded over removable shelves of iron and galvanized wire, ¼ inch mesh. These shelves are 9′ 6″ long, and 4′ 8″ wide, and when the dryer is full there rests upon each one, sheets of rubber to a depth of about 3″. Heat is applied through steam pipes at the bottom, while a small revolving fan at the top removes the moisture laden air. The dryer shown will handle about 3000 pounds in 24 hours, the heat being kept at 150° F.



THE GOLF BALL TRADE.

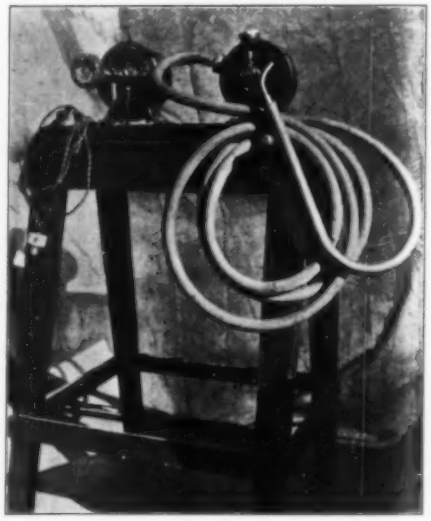
THE importations of manufactured Gutta-percha into the United States have increased remarkably within the last few years and in fact have almost quadrupled within a year. In the year 1902 the importations of manufactured Gutta-percha were $121,123, and the importations for the same goods in 1903 amounted to $442,580. Now what is the increase? An investigation into the golf ball business demonstrated very clearly that the increase was not in that line. Mr. Charles Cox, manager of the golf department of A. G. Spalding & Brothers (New York), who handle more golf materials than any others in this country, says that the increased importations of Gutta-percha do not come from golf goods.

"As a matter of fact," says this authority, "the importations of golf balls amount to nothing. I do not believe that there is as much as fifty dozen golf balls imported, and these as you must know are solid balls, made for a few cranks who do not recognize the merits of the rubber cored ball. Three or four years ago we imported about $150,000 worth of balls; now there are five or ten times as many golf balls exported as are imported. It is well understood that the rubber cored ball is very much better than the solid Gutta-percha ball, and of course this ball is a Yankee invention. We make our own golf balls under the Haskell license, and the balls that are made in Europe are under the same license.

"The golf ball business in this country is many times as large as it formerly was, and we sell a thousand dozen where we used to sell a hundred dozen. But we do not import our stuff. As the game grows in popularity in America, America shows its ability to furnish what is needed. Golf was a Scotch and English game to start with, now those countries use American balls to play it with."

TELEPHONE SWITCHBOARD CLEANER.

THE accompanying illustration shows a very useful and economical apparatus for cleaning telephone exchange switchboards, the utility of which is directly dependent upon the use made in it of India-rubber. All those who are familiar with telephone switchboards and their accessories, know the difficulty of keeping them free from dust, corrosion, and the trouble resulting therefrom. More especially is this true of the common battery switchboard where cabling and wiring are more numerous and difficult of access. The apparatus consists of a ⅓ HP. motor belted to an air blower, the two being mounted upon a wooden horse which is on rollers and can easily be moved around the room by the operator. There are a plug, extension cord and switch for making connection with the house lighting system for operating the motor. The motor has an extension shaft on one side that carries a buffer. This is used for polishing plugs, to ensure perfect contact in the spring-jacks. The air blower has attached about 20 feet of rubber hose with nozzle. With this apparatus switchboards can receive a systematic, rapid, and economical cleaning. Devised by J. E. Peavey, superintendent of equipment of The Cincinnati Suburban Bell Telephone Co. (Cincinnati, Ohio), which company have had it in satisfactory use for some time.



COTTON AND RUBBER SPORTING SHOES.—An importation of sporting shoes, composed of cotton and India-rubber, was assessed for duty at Plattsburg, New York, as rubber goods. The protest of the importer that the same should be classed as wearing apparel composed in chief value of cotton and having India-rubber as a component material, was sustained.

NEW GOODS AND SPECIALTIES IN RUBBER.

THE MACHINE MADE RUBBER SHOES.

VERY few of the many who are interested in the great industry of making or marketing rubber shoes have seen the machine made shoes whose advent was heralded some time ago both in the daily press and in THE INDIA RUBBER WORLD. It is, therefore, with some considerable satisfaction that we now present our readers with a likeness of one of the first pairs to be put on the market. The goods illustrated are men's heavy overs of the "Perfection" type, and certainly, as far as appearance go, leave little to be desired. The general effect of this shoe is that of a fine high class heavy leather shoe, the lines of sole, heel, and upper being perfect, and entirely free from the vagueness that of necessity characterizes anything in rubber that is cured in open heat without an outside forming surface. A full line of these goods, with the exception of boots, are now ready for market. Indeed, the company are said to be quietly booking orders and shipping goods, although much definite information is not given out by the parties interested. They are not, however, able to keep those who are judges from appreciating the fact that they have a splendid plant, thoroughly equipped with modern machinery, and that the plant is running. This in itself is quick work when it is recalled that ground was broken as late as last May. [Atlantic Rubber Shoe Co., Providence, Rhode Island.]

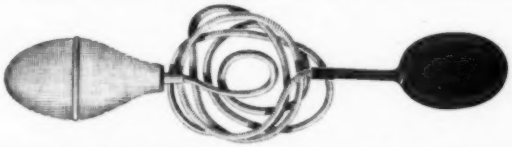
"ATLANTIC" PERFECTION.

"ATLANTIC" PERFECTION—INTERIOR.

"ATLANTIC" PERFECTION—SOLE.

THE "BOSTON JOKER."

THIS little toy is an adaptation of the old combination of a rubber bulb and tube, which, under favorable circumstances springs a surprise upon the unwary. An early use of it was in connection with a buttonhole bouquet, which the victim was invited to smell, when the bulb, securely hidden in the pocket, was squeezed and a fine stream of water caught the victim in the face. The joke was appreciated—by some, but the toy had only a limited sale. The new Joker is a bulb, tube, and a tiny rubber bag. The latter is said to be placed under one's plate at dinner for example, the long tube allowing one at the opposide to hold the bulb beneath the table and out of sight. A gentle pressure on it lifts one side of a plate a half inch or so, and it is claimed that it is a most effective fun maker. Whether it is or not depends upon the type of humorist that one happens to be. At all events the toy is new. [Chandler & Barber, No. 124 Summer street, Boston.]



"MARIGOLD" AUTOMATIC SELF CLOSING TOBACCO POUCH.

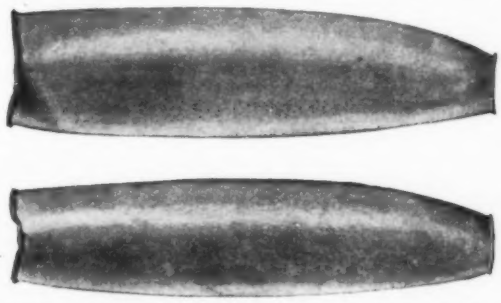
AN exceedingly ingenious and practical pouch for pipe smokers is the English novelty shown in the accompanying illustrations. This is made of the best quality of red rubber, and was designed primarily to obviate the difficulty that pipe smokers have, as a rule, in filling directly from the pouch. It can be opened so that it lies almost flat, and closes automatically, the petals folding around and under the rubber button, securely holding the contents in place. These pouches are made in three sizes—for one, two, and three ounces of tobacco, respectively. A further advantage is that it lies perfectly flat in the pocket, and from its peculiar shape will presumably last longer than the ordinary type. [J. L. Hancock, India-rubber manufacturer, 266, Goswell road, London, E. C.]

CLOSED.

OPEN.

RUBBER SLEEVES OR ARMLETS.

EITHER with or without the rubber glove the armlet of pure rubber finds many uses in the operating room, where it not only protects the clothing of the surgeon but practically sterilizes his arms from wrist to biceps. These sleeves are 16 inches in length, seamless, and made of stock that is heavy enough to be lasting, but at the same time light in weight and very elastic. [The B. F. Goodrich Co., Akron, Ohio.]



A NEW VEHICLE WHEEL TIRE.

THE illustration relates to a new detachable pneumatic tire and to means for securing the outer cover of the same in position on the wheel rim. It is the subject of United States patent No. 753,426, granted March 1, 1904, to Harry A. Palmer, of Erie, Pennsylvania. The patent covers the combination, in a vehicle wheel, of a wheel rim; a metal tire thereon; flange rings secured to the sides of the wheel rim so as to form a peripheral channel thereon; a pneumatic tire sheath provided with a slit on its inner face, and adopted, to inclose an inner tube, and fit into the channel on the wheel rim; clamping rings on the inner faces of the sheath opposite the sides of the channel on the wheel rim; and bolts passing through said clamp rings, the sides of the sheath, and the flange rings. A modification of the same patent claim relates to the holding in position of solid rubber tires.

THE "STITCH-IN-TIME" VULCANIZER.

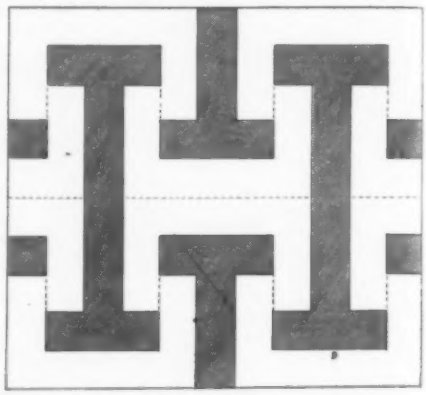
THE name adapted for the device illustrated herewith is based upon the adage that "a stitch in time saves nine," the idea being that many serious troubles with pneumatic result from the neglect of small cuts or punctures which might, with an inexpensive apparatus, be repaired with ease and promptness. The "Stitch-in-Time" vulcanizer is now made in sizes applicable to patches as large as 2½×3½ inches. It may be operated in repairing a tire without removing it from the rim, the method being indicated in a measure by the illustration. The vulcanizer has a thermometer to register the correct heat, and the lamp has a flame regulator to hold it at this point as long as necessary to complete the work. It may be used also to heal up small rents or cuts on solid rubber tires. The price is $5, including a supply of material for a dozen repairs. The apparatus weighs only 5 pounds. Patented by J. M. Padgett. [The "Stitch in-Time" Vulcanizer Co., Topeka, Kansas.]

BOOK FINISHERS "GOLD RUBBER."

IT is well known that book finishers, both blank and printed, use a great amount of gold leaf. Their scrap is in the form of little bits that it would be almost impossible to collect and save, were it not for the use of "gold rubber." In its most primitive form, as it is made by the finisher, it is a ball of uncured pure gum that by the admixture of oil and the application of heat has been formed into a sticky ill-smelling mass. Itonly needed a practical rubber man to produce something that would have all of the virtues of the old and none of its faults for the finishers to accept it with enthusiasm. This has been accomplished by the Mattson Gold Rubber. It is a compact, malleable, odorless gum not too sticky and capable of any degree of softening by the gentle heat radiating from the tool heater. It remains forever plastic, and although it sticks like a miser to the gold, it does not stick to the fingers of the workman. It is put up in neat tin boxes each holding about three ounces. This small amount of gum will easily hold 32 penny-weight of gold or about $30 worth before the olive oil, used in the size begins to make it hard to handle. Long before this time, however, it is usually sent to the smelters where the burning of the rubber sets the gold free. [Mattson Rubber Co., No. 26 West Broadway, New York.]

ORNAMENTAL RUBBER TILING.

ANYTHING in the line of a locking device for rubber tiling is, at the present time, of interest, and the simpler it is the more it appeals to the practical man. The type shown in the accompanying illustration consists of two shapes, one like a capital "I," the other an "E" with the middle mark left out, thus ⊏. These, when built together, hold perfectly without using the familiar "interlocking" devices. The separate pieces of rubber need but two dies in the making, and are really short strips rather than blocks. By the use of different colors and combinations a great variety of artistic effects may be produced. Design patent No. 36 558, granted to R. L. Chipman, September 15, 1903.



THE CHASE MUFF LAP ROBE.

THIS combination of muff and lap robe is an excellent thing for all who drive, ride in automobiles, or journey by sea or land where a robe or rug is desirable. With the combination one's hands are kept warm and the rug is easily held in place—two boons that are not conferred by the possession of the ordinary robe. In construction the muff is a departure from anything yet made, as it has a rubber and wool padded interlining, making it both waterproof and windproof, and as warm as a fur muff. In the same way, the robe has a rubber interlining, is absolutely windproof, and in fact, is just as warm as a fur robe but much lighter in weight and not nearly as expensive. Patents have been applied for covering this promising novelty. [L. C. Chase & Co., No. 129 Washington street, Boston.]

THE "DRIMOSIT" RUG.

AN altogether new type of rug for automobilists, and one that has many advantages, is shown in the accompanying illustration. The idea of this is to protect the feet and the legs from wet and from cold, and, at the same time, not to interfere with the work of the pedals. This the "Drimosit" does. It is a sort of garment, part blanket and part trousers, the lower portion ending in roomy feet equipped with thin leather soles. After stepping into it, the automobilist wraps it around him, fastening it with buttons or snaps. It is made in a great variety of materials, either single or double texture mackintosh or in shower proof goods and affords ample protection, with perfect freedom of movement. [J. W. Lovegrove & Co., 175, Piccadilly, W., London.]

MARSH'S HYGIENIC RUBBER FINGER PAD.

THE device illustrated herewith marks a decided advance over the ordinary finger cot, for many uses. It is made in five sizes, so that any ordinary finger or thumb can easily be fitted. The face of the pad is of corrugated rubber, and for such uses as the counting of money, or the handling of either glazed or smooth sheets of paper by press feeders or binders, it is all that could be desired. It is also said to have found a large field among postal employés. As a matter of fact, the office uses of this little device are almost manifold. It is made from black rubber. Protected by United States patent No. 719,352 (January 27, 1903), to Joseph G. Marsh; also by foreign patents. [Marsh Finger Pad Co., Manchester, New Hampshire.]

RAMIE FIBER IN RUBBER HOSE.

FOR some time past there has been upon the market a line of hose that shows remarkable strength tests, and that has in it

a woven fabric that in appearance resembles hemp. A careful testing of the fiber in this fabric shows it to be eight times as strong as cotton, and of such a nature that, unlike cotton, it will not mildew, nor is it injured in any way by moisture. The fiber, of course, is the well known ramie, which has so often been talked of as something that ought to be generally utilized in connection with rubber goods, and which has never heretofore been successfully used. The illustration shows a section of air brake hose in which the fiber is woven in herring bone pattern around the inner tube. In this the friction is accomplished by a coating of a softer, easily flowing stock upon the inner tube which is forced into the interstices of the hose during the process of vulcanization. This hose stands a test pressure of between 900 to 1200 pounds to the square inch, according to the number of plies. The same type of weave and the same fiber is used in a great variety of hose besides air brake, even to fire hose, the product being patented. [Peerless Rubber Manufacturing Co., No. 15 Warren street, New York.]

BRIGHT COLORED SUBSTITUTES.

RUBBER substitutes as a rule, have been of two types, the white and the black, the variation in color being but shades of the above. It is therefore interesting to chronicle the advent of three new rape seed oil substitutes that are beautiful shades of crimson, orange, and yellow. These colors are as bright and lively as if they were high class pigments instead of oil substitutes, and according to the manufacturer they hold their colors during vulcanization. As they are made for admixture with rubber, and as the manufacturer knows the needs of the trade, this claim is likely to be borne out in practice. [William H. Scheel, No. 159 Maiden lane, New York.]

VULCANIZING SILK HATS.

A "NEW PROCESS" silk hat that has caught the English market is an adaptation of the well known cork lined head gear. The special value of the new type seems to be in the attachment of the light cork lining to the silk by a fine rubber solution which is afterward heated and partially vulcanized. [The City Cork Hat Co., 181, Strand, E. C., London.]

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values for January, 1904, and the first seven months of five fiscal years, beginning July 1 from the treasury department at Washington:

MONTHS.	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber.	TOTAL.
January, 1904.....	$ 81,034	$100,757	$ 135,638	$ 317,429
July-December. ...	549,771	727,888	1,265,617	2,443.276
Total.....	$530,805	$828,645	$1,401,255	$2,760,705
Total, 1902-03...	467,156	874,830	1,229,405	2,571,391
Total, 1901-02...	355,509	833,034	940,363	2,129,806
Total, 1900-01...	304,762	587,687	963,740	1,856,189
Total, 1899-00...	319,296	253.861	748,242	1,371,309

EXPORTS TO NON CONTIGUOUS TERRITORIES.

OFFICIAL statement of values of rubber goods for the last six months of two years past:

	1902.	1903.
Alaska.....	$ 57,787	$ 59,801
Hawaii.....	29,807	40,369
Porto Rico...	20,086	25,430
Philippines.....	61,905	60,881
Total, six months.....	$169 585	$186,481

DOMINION OF CANADA.

VALUES of imports of India-rubber goods for the six months ending December 31, in three years, officially stated:

FROM—	1901.	1902.	1903.
Great Britain.....	$ 93,185	$139,285	$168,842
United States...	289.597	274,253	313,354
Other countries.....	9,012	7,621	8,746
Total.....	$391,794	$421,159	$490,942

RECENT RUBBER PATENTS.

UNITED STATES OF AMERICA.

ISSUED FEBRUARY 2, 1904.

NO. 750,838. Tire [cushion]. H. G. Fiske, assignor to Morton Trust Co., trustee, both of New York city.

750,873. Insulating sleeve and method of making same. N. Marshall, Newton, Mass.

750,878. Vaginal syringe. O. P. Moon, Lorian, Ohio.

750,931. Hose coupling. Hugh R. Ashby, Mustard, Pa.

750,968. Dust spraying device. J. R. Haldeman, Springfield, Mo.

751,160. Rubber and metal cap tip for chairs. S. Garrett, assignor to Garrett Tip Co., both of Chicago.

751,184. Hoof pad. A. Larsen, Chicago.

751,215. Form pad [involving inflatable bag]. K. L. Stenhouse, Chicago.

751,256. Fountain pen. W. H. Canfield, Newark, N. J., assignor to Patent Development Co. of America, New York city.

751,259. Hose coupling. C. E. Chaffey, Pittsburgh, Pa.

751,266. Pocket spittoon. J. M. A. Deydier, Nyons, France.

751,354. Insulated wiring tack. D. G. Smart, Grand Rapids, Wis.

751,358. Horse collar [with inflatable cushion]. J. V. Stone, assignor to H. Rasmusser and two others, all of Moorhead, Minn.

751,380. House cleaning apparatus. G. Clements and J. M. Hostler, Chicago.

751,391. Hose coupling and shut off [for air brake hose]. L. D. Goughenour and J. A. Marx, Braddock, Pa.—Goughenour assignor to Marx.

751,415. Nipple shield. F. P. Prindle, Stamford, Conn.

Trade Marks.

41,966. Rubber heels and soles for boots and shoes. Foster Rubber Co., Boston. *Essential feature.*—A circular figure of relatively small spots contrasting with a darker background. Used since Jan. 15, 1901.

41,996. Golf balls. I. B. Kleinert Rubber Co., New York city. *Essential feature.*—A band of distinctive color applied to or produced on a golf ball or a representation thereof. Used since Dec. 15, 1903.

ISSUED FEBRUARY 9, 1904.

751,493. Vulcanizer [for small work]. J. F. Funck, assignor of one half to P. Funck, both of Rochester, N. Y.

751,551. Horse collar [with inflatable tube]. F. A. Pett, Denver, Colo.

751, 556. Vulcanizer for repairing tires. H. K. Raymond, assignor to The B. F. Goodrich Co , both of Akron, Ohio.

751,631. Hose coupling. J. Glück, New York city.

751,682. Air brake coupling. J. H. Phillips, Pottsville, Pa.

751,817. Elastic heel. F. H. Stubner, East Rutherford, N. J.

Trade Marks.

42,011. Rubber gloves. The Pure Gum Specialty Co., Barberton, Ohio. *Essential feature.*—The word "Mitzel." Used since Sept. 1, 1901.

42,018. Syringes. Frederick Stearns & Co., Detroit, Mich. *Essential feature.*—The word "Simplex." Used since Jan. 6, 1904.

ISSUED FEBRUARY 16, 1904.

752,024. Jar closure. H. S. Brewington, assignor of one half to W. F. Seim, both of Baltimore.

752,085. Hose coupling. L. V. Long, assignor of one half to J. A. McKean, both of Bowerston, Ohio.

752,114. Breath guard. L. Sennett and A. L. Moore, Russell, Ky.

752,116. Flooring or wall covering material [waterproofed with rubber]. J. J. C. Smith and M. Smith, Passaic, N. J.

752,147. Sponge rubber mattress. M. L. Derick, Chicago.

752,228. Pneumatic tire. H. E. Irwin, Galesburg, Ill., assignor to Irwin Rubber Co., Chicago.

752,361. Vaginal douche. N. C. E. Schwartz, New York city.

752,414. Covered elastic cord. R. B. Price, Chicago.

752,415. Apparatus for mounting tires. R. B. Price, Chicago.

752,416. Rubber vehicle tire [solid]. R. B. Price, Chicago.

752,417. Rubber vehicle tire [solid]. R. B. Price, Chicago.

752,516. Foot warmer [of flexible waterproof material]. J. D. Carney, Clinton, Mo.

752,632. Heel. E. D. Tyler. Glasgow, Scotland.

ISSUED FEBRUARY 23, 1904.

752,639. Cushion tire. S. Adlam, New York city.

752,654. Means for inflating life belts. Henry Clews, Jr., New York city, and F. V. Dalziel, Paris, France.

752,703. Controlling device for vulcanizers or like apparatus. C. E. Orndorf, Ligonier, Pa., assignor of one half to L. S. Smith & Son, Pittsburgh.

752,826. Tire repairer. C. C. Deschenes, Fall River, Mass.

752,833. Attachment plug [for electrical apparatus]. P. H. Fielding, New York city.

752,891. Rubber tire. G. B. Dryden, Chicago.

752,951. Rubber-like gum [derived from *Picradenia floribunda utilis*, the much vaunted rubber plant of Colorado]. M. G. Brownell, Denver, Colo.

752,952. Rubber-like gum. M. G. Brownell, Denver, Colo.

752,975. Machine for working rubber. Arthur N. Hood, Boston.

752,988. Rubber-like material [derived from *Picradenia floribunda utilis*]. Richard A. Leigh, assignor to the Western Rubber Co., both of Denver, Colo.

753,000. Glove. W. B. Phillips, Fort Wayne, Ind.

753,002. Bath Tub. C. A. Ricks, Glenville, Ohio.

753,063. Water bottle. J. F. Goodridge, Boston.

753,096. Hose coupling. P. C. Osteen, Hendersonville, N. C.

753,184. Typewriter attachment. L. H. Weston, Deer Island, Oregon

753,204. Method of manufacturing cushion tires. M. Nirdlinger, Philadelphia.

753,205. Vehicle tire. *Same.*

753,206. Art of manufacturing vehicle tires. *Same.*

ISSUED MARCH 1, 1904.

753,230. Hose [spirally wound, for air brakes]. R. B. Calcutt, Chicago.

753,310. Composition of matter [including India-rubber] W. A. Price, assignor to the Electric and Dental Specialty Co., both of Cleveland, Ohio.

753,322. Garment [shirt with elastic insertion from top to bottom, in front, in lieu of openings]. J. A. Scriven, New York city.

753,401. Vehicle tire. H. E. Irwin, Galesburg, Ill., assignor to Irwin Rubber Co., Chicago.

753,426. Vehicle wheel tire [pneumatic]. H. A. Palmer, Erie, Pa.

753,593. Fountain marking device. J. E. Langill, New York city, assignor to Langill Fountain Pen and Brush Co., Jersey City, N. J.

753,634. Hose nozzle. C. L. Sankey, Yonkers, N. Y.

753,646. Tire for vehicle wheels. J. A. Swinehart, Akron, Ohio.

753,684. Truss for ruptures [with pad of sponge rubber]. B. J. Douds, Canton, Ohio.

Reissue.

12,200. Bottle tap. J. A. Sherrard, Boston, Mass.

[NOTE.—Printed copies of specifications of United States patents may be ordered from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENTS APPLIED FOR—1903.

[* *Denotes Applications from the United States.*]

802. Silvio T. Tatti, London. Compound for use in dress shields. Jan. 12.

824. W. Bentley, Liverpool. Pneumatic wheel for vehicles. Jan. 12.

837. D. Anderson and H. J. S. Cassal, London. Pneumatic tire. Jan. 12.

936. J. Birtwisle, Manchester. Pneumatic tire. Jan. 14.

*988 T. R. J. Willis, Kingston-on-Thames. Hose coupling. (J. Homola, United States.) Jan. 14.

1,073. Marie L. Rollier, London. Boot heel. Jan. 15.

1,131. W. A. Morrall, Birmingham. Pneumatic tire. Jan. 16.

1,156. F. W. Mottershaw and C. Macintosh & Co., Limited, Manchester. Inflatable toy. Jan. 16.

1,160. H. W. Hanwell, Coventry. Device for adjusting the length of gas tubing and the like. Jan. 16.

1,183. W. C. Church, M. Griffiths, and C. C. Braithwaite, London. Brake blocks for vehicles and tire treads for use therewith.

1,219. Oswald G. Moseley, Manchester. Pneumatic tire. Jan. 18.

1,243. G. V. Brooks, London. Pneumatic tire. Jan. 18.

1,260. S. Miller, London. Pneumatic wire tire. Jan. 18.

1,290. C. W. Zaring, London. Horseshoe pad. Jan. 18.
1,291. C. W. Zaring, London. Composite soft tread for tires, horseshoe pads, mats, etc. Jan. 18.
1,317. R. Sharpels, Swinton. Unpuncturable tire for motors. Jan. 19.
1,356. W. Baxter and F. W. Summerfield, Wolferhampton. "B and S" rubber sole. Jan. 19.
1,367. D. S. Hodge, Bradwell-on-Sea. Pneumatic tire. Jan. 19.
1,373. R. Bell, Glasgow. Rubber tire for motors. Jan. 19.
1,384. E. F. McArdle, London. Elastic tire. Jan. 19.
1,454. T. H. Roberts, and N. Roberts, Manchester. Rubber pad for boots. Jan. 20.
1,486. G. S. Ogilvie, London. Tire for motors. Jan. 20.
1,490. F. H. Richardson, London. Means for preventing tire punctures. Jan. 20.
1,497. E. Midgley, London. Pneumatic tire. Jan. 20.
1,553. H. Taylor-Stephens, London. Pnenmatic tire cover. Jan. 21.
1,712. R. Appleyard, London. Golf ball. Jan. 22.
1,724. F. C. Jones, London. Rubber connection for rubber and metallic tube. Jan. 23.
1,726. J. McCraith, Melton-Mowbray. Substance suitable for replacing or in conjunction with Caoutchouc. Jan. 23.
1,735. E. N. Molesworth-Hepworth, Manchester. Golf ball. Jan. 23.
1,781. F. Wackenbuth, London. Syringe. Jan. 23.
*1,870. F. J. Gruss, London. Vaginal syringe. Jan. 25.
1,889. J. P. Higgins, London. Improvement in wheel rim and a tire therefor. Jan. 25.
1,904. W. M. Thompson, London. Prevention of side slipping in vehicle tires. Jan. 25.
1,919. T. J. R. Clarkson, Birmingham. Prevention of side slipping in pneumatic tires. Jan. 26.
1,930. G. Murray, Glasgow. Method of waterproofing textile fabrics. Jan. 26.
1,946. Christian H. Gray and T. Sloper, London. Securing pneumatic tires to rims. Jan. 26.
1,976. A. Nehemias, London. Fountain penholder. Jan. 26.
1,989. F. W. Page and T. W. Cope, London. Detachable heel tips for boots. Jan. 26.
1,992. W. P. Thompson, London. Inflation of pneumatic tires. (Communicated from Italy.) Jan. 26.
1,996. E. Hör and H. Wieser, Liverpool. Tire valve. Jan. 26.
2,114. C. T. Scott, Sheffield. Non-skidding cover for pneumatic tire. Jan. 28.
2,121. W. Foster and B. S. Foster, Leeds. Revolving boot heel. Jan. 28.
2,173. A. Merritt, London. Improvement in wheel rims and tires. Jan. 28.
2,183. H. R. Ashby, London. Hose coupler. Jan. 28.
2,272. G. W. Pitt and E. Martin, London. Tread for vehicle tires. Jan. 29.
2,388. W. R. Taylor, Birmingham. Solid automobile tire, Feb. 1.
2,483. A. G. Bloxam, London. Injection syringe (J. & H. Lieber, Germany). Feb. 1.
2,493. E. J. Bliss, London. Cushion heel pad for boots. Feb. 1.
2,518. C. Harvey, Glasgow. Pneumatic tire valve. Feb. 2.
2,554. H. Schnepp, London. Pneumatic tire. Feb. 2.
2,605. M. Simpson, Liverpool. Detachable heel for boots. Feb. 2.
2,621. E. Boydell, London. Tire valve seat. Feb. 3.
2,712. R. Lenel, London. Waterproof collars and cuffs. Feb. 3.
2,718. A. H. Hayles, London. Elastic tire. Feb. 3.
2,775. W. H. Burtonshaw and F. R. Pedder, Bradford. Heel pad for boots. Feb. 4.
2,779. W. Fernie, Glasgow. Golf ball. Feb. 4.
2,780. J. H. Roger, Glasgow. Golf ball. Feb. 4.
2,788. R. W. B. Oppenshaw, Bournville, near Birmingham. Wheel rim for securing pneumatic or solid rubber tires. Feb. 4.
2,816. G. V. De Luca, London. Golf ball. Feb. 4.
2,830. J. Griffiths, London. Adjustable bootheel pad. Feb. 4.
2,834. A. F. Longdon and W. Forman, London. Knitting machine for tubular elastic fabrics. Feb. 4.
2,880. H. Cassell, Glasgow. Puncture proof tire cover. Feb. 5.
2,882. E. W. Wooders, Manchester. Rubber bootheel pad. Feb. 5.
2,982. L. Lessman and M. Weinkopf, Manchester. Preparation for impregnating rubber tires. Feb. 6.
2,991. T. H. Sample and Charles Macintosh & Co., Limited, Manchester. Inflatable musical toy. Feb. 6.
2,997. J. F. Funck, London. Improvement in vulcanizers. Feb. 6.
3,035. G. Moore, Jr., Birmingham. Bicycle tire. Feb. 8.
3,047. T. Gare, Manchester. Elastic tire. Feb. 8.
3,086. R. Martini and W. A. A. Grevers, London. Tire rim. Feb. 8.
3,169. F. D. Cash. London. Suspension chain for rubber gas tubing and the like. Feb. 9.
3,202. P. S. Fowler, London. Elastic tire. Feb. 9.
3,259. J. Alloatti, Liverpool. Prevention of side slip in vehicle tires. Feb. 9.
3,290. E. N. Molesworth-Hepworth, Manchester. Golf ball, billiard ball, etc , and means of connecting portions thereof. Feb. 10.
3,296. E. P. Wooders, Manchester. Revolving boot heel. Feb. 10.
3,303. E. Niederhaüser, London. Tire cover. Feb. 10.
3,347. R. M. Howison, London. Heel pad. Feb. 10.
3,362. C. A. Brackelsberg, London. Pneumatic tire. Feb. 10.

PATENTS GRANTED.

[ABSTRACTED IN THE OFFICIAL JOURNAL, JANUARY 27, 1904.]

21,326 (1902). Bandage-tourniquet. E. Denain, Paris.
*21,255 (1902). Dress shield. D. Basch, New York city.
*21,356 (1902). Dress shield. D. Basch, New York city.
21,371 (1902). Vehicle wheel. J. Hamilton, Leicester.
21,375 (1902). Laying electric cables [device to prevent injury to insulation when laying at low temperatures]. G. Zaph, Cologne, Germany.
21,380 (1902). Pneumatic tire [chain nail embedded in cover]. E. Medsley, London.
21,419 (1902). Spraying nozzle [for garden hose, syringes, etc.] W. C. G. Ludford, Sutton-Coldfield, near Birmingham.
*21,444 (1902). Marine life saving belt. H. A. Ayvad, Hoboken, New Jersey, United States.
21,458 (1902). Pneumatic tire [cover protected by pigskin]. C. F. Cooper, Leytonstone.
21,478 (1902). Waterproof cloak. S. L. Mandleberg, Salford, and A. H. L. Wyatt, Thames Ditton.
21,504 (1902). Rubber bootheel. W. McLellan, Bredbury, and G. Mellor, Woodley.
21,575 (1902). Pneumatic tire. R. Williams, London.
21,594 (1902). Rubber bootheel. T. H. Slack, Alderley Edge.

[ABSTRACTED IN THE OFFICIAL JOURNAL, FEBRUARY 3, 1904.]

21,639 (1902). Heel protector. E. C. Stacey, Cleethorphes.
21,745 (1902). Pneumatic tire [with suitable rim]. H. Sandwith, London.
21,866 (1902). Heel protector. A. G. Leach, Kingston-upon-Hull.

[ABSTRACTED IN THE OFFICIAL JOURNAL, FEBRUARY 10, 1904.]

22,172 (1902). Golf ball. Charles J. Grist, Banstead, Surrey.
22,227 (1902). Tool for smoothing garden paths. A. J. Boult, London. (G. J. Hoskins, Ultimo, N. S. W.)
22,301 (1902). Traveling bath. M. J. Adams, Scottswood-on-Tyne.

[ABSTRACTED IN THE OFFICIAL JOURNAL, FEBRUARY 17, 1904.]

22,462 (1902). Bottle stopper [with rubber washer]. J. Nies, Karlsruhe, Germany.
22,590 (1902). Golf club [striking face may be India-rubber or Gutta-percha]. R. L. Urquhart and E. M. Urquhart, Dunbar.
22,618 (1902). Method of impressing designs on India rubber during vulcanization. E. P. Raper, Low Ousegate, Yorkshire.
22,662 (1902). Pneumatic tire. H. Jelley, Birmingham, and J. Jelley, Coventry.
22,696 (1902). Glove protector. W. B. Walley, Lee, Kent.
22,728 (1902). Pneumatic tire [with special rim]. J. Ashland, Gorey, Ireland.
22,801 (1902). Sole and heel protector. G. Looms, Market Harborough.
22,804 (1902). Fire extinguisher. J. Wetter, London. (Communicated from Germany).

[ABSTRACTED IN THE OFFICIAL JOURNAL, FEBRUARY 24, 1904.]

22,855 (1902). Heel protector. J. C. Hale, Alexandria, Scotland.
22,893 (1902). Handle for cricket bats. R. Abel, London.
22,902 (1902). Pump for inflating motor tires. S. L. Boot, R. Clegg, W. Taylor, and J. Ediss, Addlestone, Surrey.
22,973 (1902). Elastic tire [with lining of cork shavings]. F. F. Boyd, Inverernan, Hampshire.

23,002 (1902). Pocket spittoon. F. K. Beyer, Bielefeld, Germany, and another.

23,004 (1902). Resilient tire. J. Taylor, Salford.

23,033 (1902). Waterproof coat [may be used as a ground sheet]. T. S. Scarborough, J. Miller, and British Millerain Co., Halifax.

23,052 (1902). J. Hübner and C. Danne, Hannover-Linden, Germany.

23,118 (1902). Heel and sole. W. T. Sochon, London.

23,123 (1902). Pneumatic tire. C. Burnett, Durham.

23,146 (1902). Tube for feeding bottle. W. Foster and M. R. Ellis, Hull.

*23,160 (1902). Reservoir pen. J. Bovill, Chicago, Illinois.

23,213 (1902). Elastic heel. H. Holt, Cardiff.

23,214 (1902). Rubber heel tip. T. B. Smith, Gravesend.

23,234 (1902). Tube for feeding bottles. H. S. Barnes, Northfield, and J. Ellis, Kingston-on-Hull.

23,241 (1902). Brake blocks [formed by coiling fabric treated with rubber solution]. A. W. deVal, London.

GERMAN EMPIRE.

PATENTS GRANTED.

149,388 (Class 30*d*). Elastic stocking with hose-like calf having a longitudinal seam and connecting edge on the underside. W. F. Ware and W. R. Cartledge, Philadelphia, United States. Jan. 20.

150,296 (Cl. 39*a*). Process and appliance for molding hollow bodies out of plastic substances. E. Dor-Delattre, Budel, Holland. July 3, 1903.

150,337 (Cl. 37*d*). Door and window strips. H. Thust, Cologne. Jan. 9, 1903.

DESIGN PATENTS GRANTED [GEBRAUCHSMUSTER].

215,176 (Class 30*f*). Friction glove armed with sponge rubber. Hannover'sche Gummi-Kamm Co., A.-G., Hannover. Jan. 20.

215,177 (Cl. 30*f*). Friction band armed with sponge rubber. Hannover'sche Gummi-Kamm Co., A.-G., Hannover. Jan. 20.

215,697 (Cl. 3*b*). Knit glove coated with rubber. A. Ebenstein, Berlin. Jan. 27.

216,493 (Cl. 70*b*). Ink lead for fountain penholders. I. Bierlein, Berlin. Feb. 3.

217,102 (Cl. 3*a*). Rubber band, upon the ends of which are attached rubber pressure surfaces provided with clamps for cuffs. W. Kornacki, Konigsberg. Feb. 17.

216,987 (Cl. 47*f*). Rubber hose having a roughened outer surface. Asbest u. Gummiwerke Alfred Calmon, A.-G., Hamburg. Feb. 17.

215,733 (Cl. 63*b*). Non tearable and non explosive rubber hose for pneumatic wheel tires. G. Moning, Berlin. Oct. 8, 1903.

APPLICATIONS.

10,202 (Class 41*b*). Elastic hat holder. M. Archambault, Paris. Feb. 3.

18,588. (Cl. 34*c*). Elastic buffing ring for brass buffing machines. G. Robinsohn, Dresden. Feb. 10.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION).

336,095 (Oct. 19, 1903). Cadet and Coignet. Unpuncturable pneumatic tire.

336,206 (Oct. 21, 1903). Seguin and de Roussy de Sales. Process of manufacturing caoutchouc.

336,312 (Oct. 30, 1903). Société Générale des Etablissements Bergougnan & Co. Corrugated tread for pneumatic and solid tires.

336,339 (Sept. 28, 1903). Dezarnaud. Receptacle for reserve pneumatic tires on automobiles.

336,408 (Nov. 2, 1303). Hirchson and Natanson. Pneumatic tire covers for bicycles and automobiles.

336,531 (Nov. 11, 1903). Goffin and Renouard. Tire for automobiles.

336,629 (Jan. 22, 1903). Legrand. "Take down" rim-felly for pneumatic and other elastic tires.

336,641 (Nov. 9, 1903). The Fawkes Rubber Co. (United States). Tires for bicycles and vehicles.

336,642 (Nov. 9, 1903). The Fawkes Rubber Co. (United States). Molds for wheel tires.

336,654 (Nov. 13, 1903). Société anonyme de Pneumatiques Cuir Samson. Process of attaching leather protectors on rubber tires.

336,706 (Nov. 9, 1903). Calmus. Non deflating pneumatic tire.

336,712 (Nov. 14, 1903). Chary. Elastic tire.

336,770 (Nov. 18, 1903). Société anonyme des Etablissements Falconnet-Pèrodeaud. Elastic pebble-tread tire.

[NOTE.—Priated copies of specifications of French patents may be obtained from R. Bobet, Ingenieur-Consul, 16, avenue de Villiers, Paris, at 50 cents each, postpaid.]

NEW TRADE PUBLICATIONS.

WE have received from J. G. INGRAM & SON, of the London India Rubber Works (Hackney Wick, London), an illustrated catalogue of India-rubber goods of their manufacture, chiefly seamless molded surgical goods, and other like sundries. This catalogue is devoted to illustrations alone—twenty-two plates on large sized paper, each showing a number of articles indicated by numbers, and the whole substantially bound for permanent use. Accompanying it is a Price List, of recent issue, with references to the engravings in the catalogue. The price list is also printed in French and Spanish editions, the same illustrated catalogue serving equally well with either. This house dates from 1847, and are large contractors to the government, besides which an important export trade has been built up.

CONTINENTAL RUBBER WORKS (Erie, Pennsylvania) send us their first catalogue, devoted to bicycle and automobile tires. They have been granted patents on single tube and double tube tires and inner tubes, the details of which are illustrated in this pamphlet. Pedal rubbers, repair plugs, and valves are also illustrated. [5⅛″×8⅛″. 16 pages.]

G & J TIRE CO. (Indianapolis, Indiana), issue a catalogue for 1904 of "G & J" detachable tires for use on automobiles, motor cycles, and driving carriages. Details are given of the special features of these tires, with the help of illustrations, together with prices for tires of different dimensions. [4⅞″×6⅞″. 12 pages.

THE MANHATTAN RUBBER MANUFACTURING CO. (New York) issue a portfolio of plates illustrating designs in colors of their Rubber Tiling, showing a number of attractive effects. [5″×7½″. 13 plates.]

BOSTON WOVEN HOSE AND RUBBER CO. issue Catalogue C, devoted to rubber and cotton rubber lined Garden Hose. Beginning with some general considerations relating to garden hose construction, the catalogue describes in detail the various grades manufactured by the company, and ends with a list of hose fittings. [5¼″×7¾″. 16 pages.]

B. PRIESTLEY & CO. (Bradford, England, and New York) send out a tastefully illustrated booklet showing uses for "Cravenette" raincoats, with some notes on the merits of these goods. [4½″×6½″. 16 pages.]

MICHELIN TIRE CO.—United States agency (New York) issue a price list of Michelin pneumatic tires, for automobiles, made by the renowned factory of Michelin et Cie., Clermont-Ferrand, France, and also valves, repair outfits, and other accessories. [4⅛″×6½″. 12 pages.]

PICHER LEAD CO. (New York and Chicago) issue a booklet entitled "The Story of Picher Sublimed White Lead," in which is recounted the experience of the inventor of the process of making white lead by sublimation, by the gentleman who is now the company's general manager, and the merits stated of the material thus produced. [6¾″×9″. 16 pages.]

THE VEHICLE APRON AND HOOD CO. (Columbus, Ohio) have issued Price List No. 9 of storm fronts, aprons, and hoods for buggies and other vehicles, which they make in great variety, using rubber drill supplied from an important rubber factory. The business is very extensive, having existed for thirteen years, and now representing a capital of $100,000. [3⅜″×6¾″. 52 pages.]

ALSO RECEIVED.

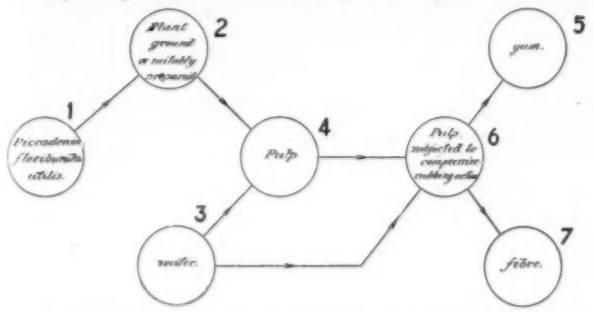
PILLEY Packing and Flue Brush Manufacturing Co. (formerly St. Louis Steel Wire Brush Co.) St. Louis=Packings, Flue Brushes, etc. 16 pages.

The Diamond Rubber Co., Akron, Ohio=[The Endurance Run as a Test of 1904 Diamond Tires]. 4 pages.

THE "PICRADENIA" AND THE GRAPHIC CHART.

THREE United States patents granted recently—two of them to Myron G. Brownell, and one to Richard A. Leigh, both at present of Denver, Colorado—may prove of no little interest to rubber men.

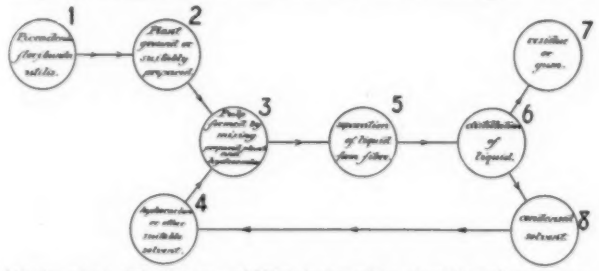
The first patent granted to Brownell, No. 752,951, is for a *Rubber-like Gum*. In this he states clearly that he has invented —really invented—this gum. Some finicky people might claim that he merely extracted the gum, but let his words stand. The genesis of his invention appears to be the discovery in his locality of a plant or shrub known (not widely) as the "Colorado rubber plant." This, according to a botanist to whom it was submitted, turns out to be the *Picradenia floribunda utilis*, and he adds that it contains considerable quantities of rubber in its roots. This plant is not to be confused with the *Picradenia Richardsoni*, the *Picradenia Brownelli*, or, the *Picradenia Leighhigh valleyi*.



[1] *Picradenia floribunda utilis.* [2] Plant ground or suitably prepared. [3] Water. [4] Pulp [5] Gum [6] Pulp subjected to compressive rubbing action. [7] Fiber.

FIG. 1.

Mr. Brownell takes the plant by force, dries it, powders it, puts it in a solution of, say benzine, to which is added a few drops of alcohol, which dissolves the rubber-like gum. The liquid is then separated from the plant fiber, is later subjected to distillation, leaving the gum in one receptacle and the solvent in another. The subjoined drawing or graphic chart (Fig. 1) graphically indicates the various steps of the process.



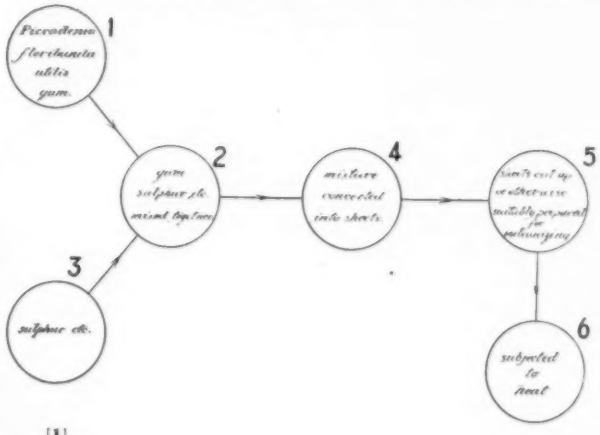
[1] *Picradenia floribunda utilis.* [2] Plant ground or suitably prepared. [3] Pulp formed by mixing prepared plant and hydrocarbons. [4] Hydrocarbon or other suitable product. [5] Separation of plant from fiber. [6] Distillation of liquid. [7] Residue or gum. [8] Condensed solvent.

FIG. 2.

Further on Mr. Brownell says that while the process that he describes of recovering the gum has been found efficient, it is to be understood that he may employ any process which will serve to produce the gum from the plant *Picradenia floribunda utilis*. Therefore hands off from the *Picradenia*—and don't monkey with the *utilis*.

After affixing his signature in the presence of two witnesses, Mr. Brownell proceeds to spring on an awestruck world patent No. 752,952. Here he has a graphic chart (Fig. 2) as well as a picture of a machine, used as an aid in inventing the rubber-like gum. This process consists of the grinding of the plant, its mixture with water until a pulp is formed, a subjection to compressive rubbing action, and the separation of the gum and fiber by washing, and this delivers the gum *pure*, which is always a desideratum. The witnesses having come in about this time, Myron G. affixed his signature, and we turn to the third patent.

This is numbered 752,988 and is granted to Leigh, who assigns it to the Western Rubber Co., of Denver, Colorado. It is evident from the beginning that the graphic chart has got in its work on this inventor also, for he springs one on the reader at the first jump (Fig. 3). His invention, however, deals with the utilization of the gum; in other words he attends to the *utilis*. Briefly described, he mixes it with "sulfur," sheets it, cuts it up or otherwise suitably prepares it for vulcanizing, and vulcanizes it! He makes hard or soft goods. He cures in dry or wet heats—and, like Brownell, he too, affixes his signature.



[1] *Picradenia floribunda utilis* gum. [2] Gum, Sulphur, etc., mixed together. [3] Sulphur etc. [4] Mixture converted into sheets. 5 Sheets cut up or otherwise suitably prepared for vulcanizing. [6] Subjected to heat.

FIG. 3.

But what of the "Salad rubber plant?"

For years both of these discoverers must have known the *Lactuca sativa*, which contains rubber, not in its roots but in its broad succulent leaves. It is even more of a *utilis* than the *Picradenia*, for its leaves are edible. That it is commonly known as "lettuce" in no way interferes with its value as a possible rubber producer, or at least a producer of a rubber-like gum. Further than this, if edible solvents were used after the mixing chamber were reached, the product might follow one line of treatment and emerge as Pará rubber, or another and be marketed as lettuce salad. In order effectually to protect such a valuable process and interest sufficient capital to do the business on a large scale, it would be well to apply for a patent, illustrated by the subjoined graphic chart (Fig. 4.)

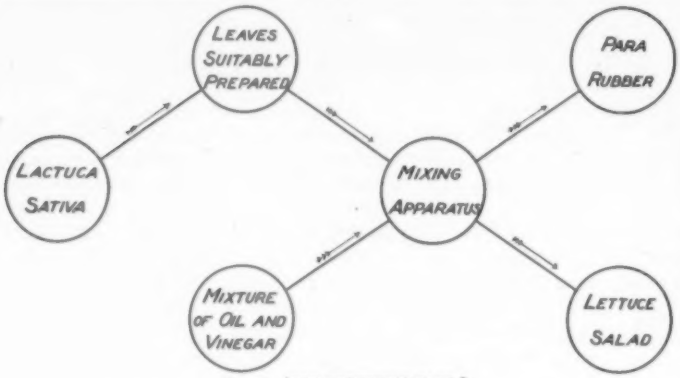


FIG. 4. [SEE PRECEDING PAGE.]

THE WONDERFUL COLORADO RUBBER PLANT.

[THE INDIA RUBBER WORLD disclaims responsibility for any of the statements which follow, in relation to the "Colorado rubber plant," said statements being compiled from various newspapers now on file in this office.]

IN the issues of recent western newspapers may be found information regarding the "rubber weed," sufficiently varied to meet every taste. It abounds in Colorado, Utah, Arizona, and New Mexico. There is, in fact, no proof of its non existence in any given locality. It is described as "a variety of chico weed"; it is known locally in various regions as "sage brush," "rabbit brush," "cotton weed," "rag weed," and "poison weed" (because it is fatal to sheep). Botanically, is *Actinella Richardsoni*. Botanically it is also *Picradenia floribunda utilis*.

This plant grows in bunches about one foot high, and has a small yellow flower, somewhat like a daisy. It has several roots, the main one growing straight downward, about an inch in diameter and weighing about 4 ounces. "It looks like a worthless shrub." There are seven varieties of it. It grows 6 feet high. It frequently grows 15 feet high. When cut off at the root, it grows again to a greater size. "Some of the plants show a diameter of 4 feet and some of 8 feet."

The plant covers thousands of acres and long has been considered a nuisance. It was discovered less than two years ago by a prospector named Spencer, who, on losing his way, and becoming hungry, fell to chewing everything that came his way, with the result that he found that the roots of this plant contained a rubber like gum. Fifteen years ago John Beck, while a wealthy mine owner in Utah, found that the roots of this plant contained rubber, but he wasn't interested in rubber then. Later, his fortune gone, he remembered the rubber plant, and, being a chemist, thought it might be worth something. So, after a long search, he rediscovered it, and now he is getting up a million dollar company in Utah to make rubber from the plant. The stalks bear a fuzz which can be used as cotton; the bark yields a fiber resembling horsehair; the bark is also good as fuel; it yields tar paper and Japanese paper; the roots look like horseradish and stand well out of the ground; the roots are rich in potash; the flowers have medicinal properties; the seed pods yield camomile. The plant was discovered by C. M. Fueller, a Denver chemist. William Sunderland, the veteran metallurgist, chemist, and mining engineer, is the true discoverer of the plant, or of the valuable uses to which it may be put, and is amply fortified with papers to prove his claim.

The fact that the plant contains rubber was discovered by F. R. Marsh, a Denver promoter, who has organized the American Crude Rubber Co., with $1,000,000 capital, to get the rubber out. The American Crude Rubber Co. have advertised that they own patents covering the product of the Colorado rubber plant, as well as the process of making rubber therefrom. The Salida board of trade are dickering with other parties for the erection of a rubber extraction works. The American company wrote to the board of trade, calling attention to the patents, and received a letter in reply stating that it must be a "big bluff," and that the American company had "unlimited gall and nerve." The Salida *Mail* calls the holders of the patents "a conclave of confidence men," and says that the Salida business men "know a grafter when they see him." Meanwhile it is asserted that in New Mexico a factory is producing an excellent quality of rubber from this wonderful plant.

It is the greatest thing ever discovered. Gold mining is out of sight. Colorado is the irchest country in the world. The new rubber will be ready in about 60 days.

RUBBER NOTES FROM EUROPE.

BRITISH RUBBER MANUFACTURERS' ASSOCIATION.

THE India Rubber Manufacturers' Association of the United Kingdom now embraces 28 manufacturing firms, including the most important in the country. The membership was increased by 3 firms within the past year. During the year several matters of general interest to the trade received the attention of the association, or of its officers or committees, and in respect to most of them satisfactory agreements were arrived at. For instance, certain restrictions on the carriage of rubber solution on railway trains were modified, and the rate reduced. Through the medium of the association, its members were enabled readily to act in concert in making the advances on the selling prices of their products rendered necessary during the year by the higher cost of raw materials. A committee of the association have lately had under consideration the subject of a mutual fire insurance scheme for rubber factories, and have decided upon a plan to report. The officers of the association this year are:

Chairman—FRANK PEGLER (The Northern Rubber Co.).
Vice Chairman—G. C. MANDLEBERG (J. Mandleberg & Co., Limited).
General Committee—RICHARD K. BIRLEY (Charles Macintosh & Co., Limited), JOHN COOPER (The Dermatine Co., Limited), J. E. HOPKINSON (J. E. Hopkinson & Co., Limited), F. W. INGRAM (J. G. Ingram & Son), PHILLIP H. LOCKHART (W. & A. Bates, Limited), DAVID MOSELEY (David Moseley & Sons, Limited), H. G. TIPPET (The Liverpool Rubber Co., Limited), JAMES TINTO (The Irvell and Eastern Rubber Co., Limited).
Treasurer—J. E. BAXTER (The Leyland and Birmingham Rubber Co., Limited).
Secretary—F. B. KNOTT, 2, Cooper street, Manchester.

FRENCH PNEUMATIC TIRE MANUFACTURERS.

A GENERAL meeting of the Chambre Syndicale of the French pneumatic tire manufacturers was held at Paris on February 9, at which the following officers were elected: President, Edmund Deitz; vice presidents, Louis Chauvin and Lucien Tronchin; secretary general, Valery Hermay; secretary, Maurin Tels; treasurer, Paul Treuil; recorder, Jules Gay. Committee: Falconnet, C. Gauthier, Worms, Rossmann, and Sussmann. The annual dues were increased from 12 to 20 francs. On motion of Messrs. Worms and Matanson the bureau of the syndicate chamber will negotiate with the French Automobile Club, in order to obtain an interest in the future *salons*. A court of arbitration, which is to be endorsed by the court of commerce was also elected, whose duty is the protection of the interests of the manufacturers of pneumatic tires.

THE RUBBER TRADE IN TRENTON.

BY A RESIDENT CORRESPONDENT.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The strike in the rubber factories here, reported in this correspondence last month, is still in progress. As representing the attitude of the manufacturers in this connection, it may be worth while to quote a statement signed by them collectively, which appeared in one of the Trenton newspapers on March 20, as follows:

We, the following rubber manufacturers of the city of Trenton, hereby wish to make it known that we are not seeking a conference with any labor organization for the purpose of settling a strike, notwithstanding the fact that some newspapers of late have published statements to that effect.

We are running our mills to good advantage, having the usual force of men at work, and while applications from worthy ex-employés are receiving every possible consideration, yet on no account will the manufacturers discharge any of the men now at work to make room for men who went out on the strike.

The manufacturers desire to repeat that, as far as they are concerned, they consider that the strike is over, and further insist upon the right to pursue their business peaceably and according to their best judgment.

CRESCENT BELTING AND PACKING CO.
EMPIRE RUBBER MANUFACTURING CO.
EUREKA RUBBER MANUFACTURING CO.
GRIEB RUBBER CO.
HAMILTON RUBBER MANUFACTURING CO.
HOME RUBBER CO.
TRENTON RUBBER MANUFACTURING CO.
UNITED AND GLOBE RUBBER MFG. COS.
WHITEHEAD BROTHERS RUBBER CO.

It is fair to state that on March 22 a reply to the above statement, from the standpoint of organized labor, appeared also in the newspapers, signed by the committee having the strike in charge. The committee deny having sought, in their official capacity, to arrange a conference to arrange for ending the strike, though they did, as representatives of other bodies than the Rubber Workers' Union, interview certain rubber manufacturers, without result. The committee also say: "The statement that the mills are running as usual is untrue, and this fact is well known, though they have a few hands working." One of the signers of this communication is Thomas H. Flynn, a national organizer of the American Federation of Labor, with headquarters at Washington, D. C., who was summoned to Trenton by the Rubber Workers' Union and is now the official head of the strike.

* * *

W. J. HARNEY, financial secretary of the Rubber Workers Union, deserted the organization on March 5 and returned to work at the Whitehead mill. This had a depressing effect upon the strikers, and the manufacturers say led to many of the strikers asking for reinstatement. The leaders among the strikers claim that practically all the skilled workmen are holding firm. The union held its regular meeting on March 24 and at its close your correspondent was given this statement: "A motion was made to declare the strike off, but it was not even seconded. The meeting was largely attended and measures were adopted which will have an effect on the rubber industry of this city for years to come. All efforts for a conference having failed, the union decided to take aggressive action. Time will tell the results."

This is taken to mean that through the local Central Labor Union and the American Federation of Labor the factories here are to be placed on the unfair list and blacklisted all over the country.

A special meeting of the Rubber Worker's Union was held on March 27, to consider the question of continuing the strike. After the meeting a statement was issued that about 400 members were present, and that the vote was overwhelmingly in favor of keeping up the strike.

* * *

THE Eureka Rubber Manufacturing Co. of Trenton have branched out into the manufacture of insulated wire. New machinery for this additional line has been installed and already ten styles of braided and glazed telephone wire are being made, besides several grades of rubber insulated wire for outdoor work. Manager Lambert reports the new department as successful and says a full line of insulated wire will be put on the market in a short time. The Eureka company are installing a new "Jumbo" mill and an additional 42 inch mill for friction calender work. These will make five mills that the company have installed since the opening of the factory a year ago. Two additional No. 4 Clark tubing machines have also been put in, making six the company now have in use. The factory is very busy.

* * *

THE De Laski & Thropp Circular Woven Tire Co., incorporated last June, report progress in experimenting with the tire as woven on the De Laski circular loom. Peter D. Thropp, an officer of the company, states that they expect to be ready to market the new tire by the middle of June. The company have got the manufacture of the tire to a satisfactory point, and are now making tests with regard to materials. The factory test given each tire consists in running it to the surface of a rapidly revolving wooden pulley with 800 pounds attached to the axle on which the wheel is running to give the required pressure, a 1200 mile run being given. Some prominent tire manufacturers have communicated with the company in regard to securing the circular woven fabric for use. Mr. Thropp said that arrangements might be made to supply other manufacturers with the fabric, but in any event the company here make complete tires.

* * *

TAKING of testimony in the suit of the Eureka Fire Hose Co. (Jersey City) against the Eureka Rubber Manufacturing Co. of Trenton, for an order restraining the latter company from using the word "Eureka" was completed before Vice Chancellor John R. Emory, in Newark, on February 24. The next step in the suit will be the argument on the evidence which will take place before the vice chancellor in Newark on April 4. The main points in the evidence as presented by the Trenton company in its defense was that it used the word "Eureka" only in its corporate name; therefore there was no infringement. As an argument in favor of the right to use this word in its title, counsel for the Trenton company cited the fact that 35 different companies have been incorporated under the laws of New Jersey with the word "Eureka" in the corporate titles.

* * *

THE suit of Colon Fulton against the Grieb Rubber Co., which was tried at the January term of Mercer court and in which Fulton was given a verdict of $6800, has been appealed by the defendant company on the ground of no justification for the verdict. The date for the argument on the appeal has not been set. The plaintiff sued for damages for the loss of both hands which were crushed in the machinery at the Grieb mill where he was employed. The January trial was the third hearing of the case. The two former verdicts were set aside by the court.

* * *

THE Reliance Rubber Co. which was incorporated last spring, and which got its factory in shape for business last fall,

has been tied up for nearly two months by the ice and high water in the Delaware river. The mill is located on the river bank a short distance north of Trenton. The freshet of last October flooded the mill and caused a shutdown, and on top of that came the succession of freshets and ice floes of the past few weeks. It was particularly unfortunate because the factory was just getting under way. The mill is being cleared for action again and will be started up as soon as possible.

* * *

FORMER City Clerk C. Edward Murray, of the Empire Rubber Manufacturing Co. and the Crescent Belting and Packing Co., A. Boyd Cornell, secretary of the Empire company, and County Clerk C. Harry Baker filed an answer in the court of chancery on March 7, to the cross bill filed a short time before that by William H. Skirm, Jr. In his cross bill Mr. Skirm charged Messrs. Murray and Baker with attempting to defraud him of 50 shares of the stock of the Empire company which were held by the Mechanics' Bank of Trenton, as security for a note of $3600 endorsed by Murray, and that Messrs. Murray and Baker secured the sale of the stock at forced sale to Mr. Cornell in trust for them. In the answer the defendants deny the charges, and allege that the purchase was a *bona fide* one on the part of Secretary Cornell, and that Messrs. Murray and Baker had nothing whatever to do with the transaction. Answering further, Messrs. Murray and Baker assert that Mr. Cornell, having been elected secretary of the Empire company, succeeding Mr. Skirm, desired to acquire some of the capital stock of the company. He therefore bid in the 50 shares that had been deposited by Mr. Skirm. Then, it is claimed, Mr. Cornell gave his note endorsed by Mr. Murray, in payment for the stock and deposited the new certificates issued to him as security for the note. No date has yet been set for argument in the case.

* * *

NINETY-ONE shares of the stock of the Empire Rubber Manufacturing Co. will figure in a suit to be brought by Pennington Seminary against William H. Skirm, its former treasurer, on the charge of misappropriating $7650 of the school funds. At the time of General Skirm's failure it is alleged that he paid a local indebtedness of $6000 with a check on the seminary funds, and to cover the payment of the school money discounted a seminary note in the bank at Millville, New Jersey. To secure this note, the seminary authorities allege that General Skirm deposited with the bank the stock in question. The known facts are that the bank holds the note against the seminary and the shares of stock as security.

* * *

FORMER Mayor Welling G. Sickel, vice president of the United and Globe Rubber Manufacturing Cos., has returned from St. Louis, where he made arrangements for his company to be represented there during the Louisiana Purchase exposition. No formal exhibit will be made, but the company has leased for the exposition period the home of Mrs. Louisa T. Averill, widow of the late A. M. Averill, and will use the handsome residence as a headquarters for the entertainment of the patrons and friends of the company who visit the fair. The residence contains eleven large rooms and is complete in all of its appointments. The home is located at the corner of Cabanne and Goodfellow avenues, within five blocks of the DeBaliviere gate to the exposition grounds.

* * *

THE Dyson Rubber Co., incorporated last fall, got their factory equipped and under way just before the holidays, and during the past month have got their business well established. At present the output of the company is limited to foot mats of various grades and patterns, but an experiment with bottle mats has been a success and a line of these will be out on the market in a short time. Stair treads will be another specialty, and experiments are in progress for the manufacture of hoof pads and shoe soles. George A. Dyson, president of the company, was in Philadelphia the middle of the month to buy more material for the increase in manufacture.

* * *

THE Empire Rubber Manufacturing Co. are engaged on a large consignment of "Videto" cushion heels, for the Lincoln Rubber Co. (Boston). The distinguishing feature of this heel is a lift of sole leather riveted to the rubber which renders it easy to fasten it to the shoe. Secretary Cornell of the company reports trade as good and says the factory is busy catching up with the orders which accumulated somewhat at the beginning of the strike.

* * *

WILLIAM R. THROPP, local maker of rubber machinery, has just built and shipped two machines, a washer and a grinder, to the Keasby & Mattinson Co., at Ambler, Pennsylvania.

General Manager C. H. Oakley of the Grieb Rubber Co. states that the Grieb mill is unusually busy, and is running full handed with a night turn on.

Charles M. Dilts, secretary of the New Jersey Rubber Co., whose factory is at Lambertville, reports that the company are very busy and the factory is being operated night and day. He states that so far this year business has been extremely satisfactory.

THE RUBBER TRADE IN AKRON.

BY A RESIDENT CORRESPONDENT.

TO THE EDITOR OF THE INDIA RUBBER WORLD: At a meeting of the shareholders of the Faultless Rubber Co. (Akron) and the Camp Rubber Co. (Ashland), held in the former city on February 27, the companies were consolidated, as foreshadowed recently in THE INDIA RUBBER WORLD, under the name of the Faultless Rubber Co., with the following officers: H. B. Camp, president; A. Vogt (Rochester, New York), vice president; T. W. Miller, treasurer and manager; C. E. Campbell, secretary. The directors are Messrs. Camp, Vogt, and Miller, and George D. Bates and H. E. Andress. J. D. Slater is superintendent, and W. H. Muschlet, salesman. The stock of the two companies was owned by the same people, and President Camp states that the consolidation was effected for the purpose of centralizing the work of the office forces, making it possible to conduct the business on a more economical basis. This consolidation signalizes the success of Mr. H. B. Camp in the rubber business. A few years ago he was known among business men as the owner of one of the largest building tile industries in the country, located near Akron. Having made a fortune in this line, he went into the rubber business. He began on a small scale with the Faultless Rubber Co. of Akron, but it was not long until the business had grown so that it was necessary to make an addition to the plant. This was done, and shortly after, he determined to start a factory in Ashland. Mr. Camp at that time was president and owner of the Ashland and Wooster railway, and was interested in Ashland to some extent. He organized the Camp Rubber Co. and started a plant in Ashland, one of the principal articles of manufacture being rubber cushions for a patent horse collar. In time this business also became extensive, and at this time the factory at Ashland is kept very busy. Only recently it was decided by the owners of the American Horse Collar Co. of Holland, Michigan, to remove to Ashland in order to have the plants

of the two companies together. The Camp Rubber Co. is now one of the principal industries of Ashland, and the Faultless Rubber Company of this city, while not as large as some of the companies which carry on the manufacture of tires, is an important concern, and growing rapidly. Under the able management of Mr. T. W. Miller, it has developed into one of the best paying rubber plants in Akron.

* * *

JUDGE HAYDEN, sitting in the court of common pleas of Summit County on March 6, rendered a decision, which, if sustained by the higher courts, will allow Harvey L. Miller to examine the books and records of the Miller Rubber Manufacturing Co. at his pleasure. The troubles of Mr. Miller in connection with the Miller company are of long standing. At the present time a suit is pending in common pleas court here against Mr. Miller, filed by Mr. Jacob Pfeiffer, Jr., president and treasurer of the Miller company, in which he seeks to have stock in the Miller company now held by Mr. Miller, returned to the company. Mr. Miller filed a suit against the local company, alleging that he is unable to see the books of the company, although he is the holder of 189 shares of their capital stock. His contention was sustained by Judge Hayden, who held that he has a perfect right to see the books, and that the company have no right to prevent him from doing so. The company will carry the case to the circuit court.

* * *

THE long delayed orders for automobile tires are at last beginning to come in, and tire manufacturers expect to be very busy from this on to the end of the season. As has been previously stated in THE INDIA RUBBER WORLD, the selling pool of the tire manufacturers resulted in a backward season, owing to the agreement to change the policy of credits on tires. Automobile manufacturers who in the past began to lay in a supply of tires in January, refused to do so under the terms of the selling pool, and as a consequence the tire business so far this year has been practically at a standstill. It is now beginning to pick up, and it is expected that from this time the tire makers will be very busy. The present high prices of crude rubber will make it imperative, the tire manufacturers say, to increase the price of tires if a profit is to be made on them. So far there has been no advance in the price of tires. The prices of other rubber goods still remain the same, but it is hinted that they will be advanced soon unless the price of crude rubber drops.

* * *

THE St. Mungo Manufacturing Co., of England, who formerly manufactured the Kempshall golf ball in England, have entered into an agreement with the Haskell Golf Ball, of Akron, by which they have become licensees of the Haskell ball. Mr. B. G. Work, of the Haskell company informs THE INDIA RUBBER WORLD that this is the case. The business of the Haskell company is increasing in a manner that is most pleasing to the company, and the litigation over patents has been amicably adjusted.

* * *

THE first annual report of the secretary of the Employers' Association of Akron, Ohio, and vicinity, shows a growth in membership from 29 to 92 firms, including representatives of practically every industry in Akron, and firms employing on an average about 10,000 hands. The report expresses satisfaction with the work done by the association, in bringing about a better understanding between employers and employés in a number of cases where trouble was threatened. Since the association was formed a national organization, on similar lines, has come into existence, with which the Akron association is now affiliated.

At a meeting of the directors of the Second National Bank, of Akron, on March 1, Colonel George T. Perkins retired from the office of president, in favor of Mr. Henry Robinson, but he remains a member of the board. The reasons for this step were suggested in the last INDIA RUBBER WORLD. Colonel Perkins continues, of course, in the presidency of The B. F. Goodrich Co.

Mr. C. C. Goodrich, assistant superintendent of The B. F. Goodrich Co., is having in course of construction a 30 HP. automobile of novel design, which he had planned, by the Smetzer Automobile Co., of Akron.

Mr. B. G. Work, vice president of The B. F. Goodrich Co., and his wife have returned from an extended trip in the south.

THE RUBBER TRADE IN CHICAGO.

BY A RESIDENT CORRESPONDENT.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Weather conditions continue to interfere with rubber dealers in the middle west. The tire men are simply resting on their oars, waiting for good roads and pleasant weather to open up the automobiling season, while those handling garden hose and similar lines, are hoping for an early and dry summer. Both the tire men and the rubber hose dealers say that while the outlook is for an exceptionally heavy season when once it opens up, the bad weather has delayed shipments for a month to six weeks.

Among the Chicago rubber men the only branch of the trade that shows any unusual activity is that handling the rubber and combination footwear. The shoe men have been enjoying a harvest the like of which they have not seen in twenty years in this section. The weather conditions, while not so conducive to a heavy trade during January and the early part of February, have been almost ideal for a heavy trade since the middle of February. The heavy snow which had covered the ground for nearly ten weeks began to melt, and when there is a thaw in Chicago rubber boots and overshoes are the only things that will insure dry feet, and frequently the overshoe proves inadequate because of the overflowing gutters and sewers. No sooner had the second snow melted than heavy and almost daily rain set in and the accumulations of mud made the streets all that could be desired from the rubber shoe dealers' point of view.

But the continued high price of cotton duck and of crude rubber is still causing consumers of mechanical rubber goods to hold back. They cannot get the notion out of their heads that this high price is only the result of manipulation in the cotton market, and that with the downfall of Sully prices will decline. Local manufacturers and manufacturers' agents failed to overcome this, and hence the last two months have been exceedingly quiet ones in those lines.

Western manufacturers generally have been quietly shoving up prices to offset the big advance in raw material. The local representatives declare that so far they have been exceedingly successful in this effort to raise prices. This is done on new contracts, and the increase varies from 10 to 20 per cent.

R. T. Whelpley, manager of The B. F. Goodrich Co. (Akron) declares that unless the summer is far different from what is expected, this will be one of the greatest seasons for the sale of garden hose and that class of goods Chicago dealers have had in many years. Orders on the waiting list indicate that the volume of the garden hose business for the coming season will exceed any previous year. The last two years have been exceptionally wet, and hence poor ones for this trade. This year everyone is counting on a dry season, but just why none are able to say.

NEWS OF THE AMERICAN RUBBER TRADE.

DINNER OF MECHANICAL GOODS MANUFACTURERS.

A CALL has been issued for a meeting of manufacturers of mechanical rubber goods, the officers of such companies and employés holding official positions, at the Savoy Hotel, Fifty-ninth street and Fifth avenue, New York, on the evening of Thursday April 21, at 6.30 o'clock. The program includes a dinner to be served at 7 o'clock promptly, followed by brief addresses by well known rubber manufacturers, on topics that are of special moment to that branch of the trade. This call is the result of many informal meetings of various members of the trade, which have finally resulted in the formation of a committee empowered to arrange for the meeting and for the dinner. The committee appointed are among some of the younger and more active men connected with the New York mechanical goods trade who are working with the cordial assent and support of both the older and the younger element. The committee who signed the circular calling for the dinner are, William Hillman, President New York Revere Rubber Co., J. J. Voorhees, President Voorhees Rubber Manufacturing Co., and A. F. Townsend, President Manhattan Rubber Manufacturing Co., Mr. Hillman occupying the position of secretary *pro tem.*

PENNSYLVANIA RUBBER CO.

AT the annual meeting at Jeannette, Pennsylvania, on March 17, the following officers were were elected for one year: Herbert Du Puy (Pittsburgh), president; Frank A. Wilcox, vice president and general manager; H. W. Du Puy (Pittsburgh), treasurer; George W. Shively, secretary. The directors are H. W. Du Puy, F. A. Wilcox, and H. W. Du Puy. The company was reported to be in a most prosperous condition, and all the stockholders present expressed themselves as being pleased with the manner in which the affairs have been conducted in the past year. The business outlook for the coming year is very encouraging, there being plenty of orders on hand to keep the plant busy for some months to come, with new orders coming in.

REMODELING A RUBBER FACTORY POWER PLANT.

THE Canadian Rubber Co. of Montreal recently remodeled their power plant and found that the tall brick chimney, 110 feet high, would not give the proper amount of draft necessary in connection with the four new Stirling boilers they were to install. Mechanical draft was necessary and for this purpose a large Sturtevant steel plate fan driven by a Sturtevant horizontal engine was installed, and now the proper amount of draft is easily attained and regulated at will, regardless of the weather conditions. This installation is another illustration of the necessity of mechanical draft, especially in connection with the remodeling of old boiler plants.

THE BELTING AND PACKING COMPANY TO MOVE.

THE New York Belting and Packing Co., Limited, will remove on May 1 from their present place of business, No. 25 Park place, New York, to more commodious quarters at Nos. 91–93 Chambers street. The concern has been cramped in its present location and is making the change on that account. In the new place it will occupy about twice as much space and will fit up a very handsome establishment. The new quarters will include ground floor space 50 × 150 feet, with two cellars of the same size, running through from Chambers to Reade street. The place is now in the hands of the company's architects and will be elaborately fitted up and decorated. The New York Belting and Packing Co. moved to the building they are now leaving in 1900, after having been on Park row since 1846. The original location was at No. 38 Park row, at the corner of Nassau street, but after having been burned out there the company located at Nos, 13–15, on the same street, where they remained until the great Park Row office building was projected four years ago. In the new place the offices and sales departments will be at the Chambers street end of the building, while the shipping will be done from Reade street.

WHY THEY WILL NOT EXHIBIT AT ST. LOUIS.

IT is generally known that the Rubber Goods Manufacturing Co. planned at one time to make a very elaborate exhibit at the St. Louis Fair, but just why they did not carry out their plans has not until lately transpired. President Charles H. Dale, with his usual frankness, made no secret at all of his reasons.

"We had contracted for several thousand square feet of space," he said, "and were going to spend some $10,000, showing the goods of all of our sixteen companies, but things were not made at all easy for us. In the first place, the management wanted to put 'Rainbow' packing on all of their bearings and have it free. As it would take several tons, I simply told them that we didn't have to seek that sort of advertising and that they would better pick out some packing not as well known. After that we didn't seem to be able to make much progress. Finally I insisted on finding out why we could not finish our exhibits as others had, and was politely told that we would have to wait until all of the foreign exhibits had been put in place. So I promptly withdrew our exhibits. Oh yes! publish it if you like; I have all the documents necessary to prove what I say."

THE VICTOR RUBBER CO. (SPRINGFIELD, OHIO.)

MENTION was made in these pages last month of a change in management of the above company. The new officers are: G. G. G. Peckham, president; A. G. Marshall, secretary; C. H. Marvin (of W. H. Marvin & Co.) treasurer. THE INDIA RUBBER WORLD is advised that, having increased their capital to $600,000, the company propose to enlarge their factory and triple their present capacity.

NEW ENGLAND RUBBER CLUB "SMOKE TALK."

AT the annual meeting and election of officers of the New England Rubber Club, which is to be held at the Massachusetts Automobile Club No. 751 Boylston street, Boston, on Monday, April 18, Mr. Henry C. Pearson, secretary of the Club, will give a description of his visit to the island of Ceylon and the Straits Settlements, in pursuit of more definite knowledge regarding the plantations of Pará rubber now being installed there on a large scale by British capital. The talk will be illustrated by more than a hundred stereopticon views made especially for the occasion. The Club are to gather at 7.30 P. M., light refreshments being served at the conclusion of the lecture.

THE SPRINGFIELD RUBBER TIRE CO.

THE Springfield Rubber Tire Co. (New Haven, Connecticut —with branches in several cities), who have been engaged in selling rubber tires, principally in New England, for the past seven years, are now having made for them a special line of solid and cushion tires which they are marketing as their own.

They are widening their market, through the employment of several experienced salesmen, with a view to a thorough canvas of the carriage and wagon trade of the United States. C. E. Miley is president of the company, and E. J. Todd, secretary.

REMOVAL OF THE MERCHANTS' RUBBER CO.

THE Merchants' Rubber Co. have removed from their old quarters, No 72 Reade street to a handsome new establishment at No. 139 Duane street. The business of the concern had expanded to such an extent that it was seriously cramped in the old location. The new store has double the floor space of the old, and is being fitted up in a very attractive manner. It extends through from Duane street, 185 feet to Thomas street. The store proper, on the first named street, is 25 feet wide by 85 feet deep while the Thomas street side is 75×100 feet, and in addition there is a deep basement under the entire place. The salesrooms are fitted with modern display fixtures and conveniences which the shipping department and stock room will be in the rear. Mr. William Morse, the president of the company, says that he will have space to handle 22,000 cases of rubber shoes at one time and he has fixed shelving where he can handle 2800 broken cases assorted in sizes. The convenience and advantages of the new store aside from completeness of its sales equipment are that all receipts and shipments are made from the rear, and the store proper is merely a sample room.

THE MACKINTOSH TRADE.

A PROMINENT New York jobber in mackintoshes and raincoats says in regard to that line: "The trade during the past season has been better than ever, taking it as a whole. The demand for heavy rubber surface coats is larger than ever, and the demand for cravenettes or raincoats is growing almost more rapidly than it can be kept up with. The call for mackintoshes has fallen off, which is due undoubtedly to the increased use of the raincoat. As these latter garments sell for about twice as much as the former, the sales run up into money very much more rapidly."

CANADIAN RUBBER CO. OF MONTREAL.

AT the annual meeting of the shareholders, on March 10, the following directors were reëlected: H. Montague Allan, J. B. Learmont, C. F. Smith, H. Markland Molson, Lieutenant Colonel F. C. Henshaw, Alfred Piddington, A. A. Allan, and Hugh A. Allan, and Lieutenant Colonel Prevost was elected in place of J. O. Gravel. At a subsequent meeting the officers were reëlected, as follows; H. Montague Allan, president; J. B. Learmont, vice president; E. A. Wright, secretary-treasurer; D. Lorne McGibbon, general manager. Reports submitted to the shareholders made a favorable showing in regard to the year's business, the volume of which, indeed, is understood to have exceeded expectations.

NAUGATUCK RUBBER FACTORIES BUSY.

THE rubber industry of Naugatuck, Connecticut, which is the main support of the town, was never in a better condition than at present, the local factories being taxed to keep pace with the orders. The Waterbury *American* says: "Fifteen years ago the idea of a rubber factory running the year round was considered absurd, and the help in those days considered themselves lucky to get ten months' work out of the twelve. But times have changed, and the local factories have now been running steadily for the past three years with a good outlook for 1904. This period of general prosperity is shown in many ways, for during the past year the building of new dwellings has barely kept pace with the increasing demand for tenements, and there is scarcely a vacant tenement to be found in the borough; and any doubt as to the increasing prosperity of the people of the town can be set aside by any who care to watch the stream of depositors who visit the savings bank every Wednesday evening."

END OF A STRIKE IN A MACINTOSH FACTORY.

THE month began with a strike in progress in the factory of the Union Rubber Co., waterproof garment makers, No. 113 Purchase street, Boston, over a demand for increased wages. The strikers had the support of Boston Rubber Garment Workers' Union, No. 174. On March 17 the strikers returned to work, after a conference at which concessions were made on both sides.==Four members of the garment workers' union, including the president, Harry Nurenberg, have been expelled for going to work for the Union Rubber Co. while the strike was still in progress, and while they were on a committee to confer with the company on matters relating to the strike.

NEW YORK STOCK EXCHANGE TRANSACTIONS.

UNITED States Rubber Co.:

DATES.	COMMON.			PREFERRED.		
	Sales.	High.	Low.	Sales.	High.	Low.
Week ending Feb. 17	150	12	12	860	47¾	46
Week ending Mar. 5	2,515	13	11⅜	1,660	48¾	47¾
Week ending Mar. 12	600	12⅝	12	3,822	49¾	47½
Week ending Mar. 19	2,020	13⅛	12	2,635	52⅜	49
Week ending Mar. 26	2,495	13⅞	13	3,040	54½	52½

RUBBER Goods Manufacturing Co.:

DATES.	COMMON.			PREFERRED.		
	Sales.	High.	Low.	Sales.	High.	Low.
Week ending Feb. 27	1,910	19¾	18⅞	42	79½	78
Week ending Mar. 5	3,660	19⅞	19	71	79½	78
Week ending Mar. 12	1,000	19	18¼	315	76	75
Week ending Mar. 19	1,960	19½	18½	150	76	76
Week ending Mar. 26	2,250	20¼	19¼	428	79¾	77½

THREE MORE ALLING RUBBER STORES.

EARLY in the month a retail rubber goods store was opened at New London, Connecticut, under the name Alling Rubber Co. This is the seventh of the Alling rubber stores in Connecticut. But this store, like the one at Norwich, is owned by Wilbur S. Alling, of that town, and not by a corporation.==About April 1 the Alling Rubber Co. of Hartford (consisting of Noyes E. Alling and Amos P. Mitchell) will open a rubber store at New Britain, Connecticut, under the management of William Keane, employed hitherto at the Hartford store.==The Alling Rubber Co. have opened a retail rubber in New London, Connecticut, at No. 158 State street, making the eighth Alling rubber store in the state.

BENEDICT REIS IN BANKRUPTCY.

[See THE INDIA RUBBER WORLD, February 1, 1904—page 174.]

IN the New York supreme court on March 24 Isaac Lehmann was appointed permanent receiver of the assets of B. Reis & Co., who did business as the Neptune Rubber Co., manufacturers of waterproof garments, No. 23 Lispenard street, New York. Mr. Lehmann was appointed temporary receiver on January 13. A motion that Lehmann turn over the property in his hands to E. B. Hamlin, the receiver appointed in the United States district court, has been denied by Judge Holt, of the latter court, and the business will be wound up by Mr. Lehman. The whereabouts of Bernard Reis has been unknown since early in January. There are 29 creditors on the list, whose claims aggregate $17,102, the principal ones being for cloth and waterproofing.

NEW OFFICES OF THE UNITED STATES RUBBER CO.

THE United States Rubber Co. have just moved their New York offices into the magnificent new twenty story office building at No. 42 Broadway—the largest office building on that thoroughfare. The offices of the company have been situated for the last six years in the Franklin building, Nos. 9-12 Murray street, where they occupied three floors. These quarters were ample for a time, but, owing to the large increase of business they have during the last two or three years been growing more and more inadequate. The company have for some time been looking for more spacious offices, and finally decided to take the entire twelfth floor of the new building above mentioned. It has a frontage of 115 feet on Broadway and runs back 200 feet to New street, the rear of the building being in the form of two wings, with an intervening court. The unusual amount of floor space in this building enables the company to have all their departments on one floor. The east end of the southern wing is devoted to offices and meeting rooms for the directors and executive committee and officers of the company. These rooms, very handsomely finished in antique oak, are furnished entirely in mahogany. The view from these offices, looking over East river and across Brooklyn, is particularly fine. Next to the directors' rooms come the general purchasing and crude rubber departments. The north wing is devoted to the selling department, Mr. Paine, Mr. Armstrong, and Mr. Rice having private offices at the extreme eastern end, the rest of this wing being occupied by the transportation and advertising departments, and by various other members of the selling organization. Between these two wings, opening on the court, but also looking out across the East river, the assistant general manager, Mr. Sawyer, has a suite of offices for himself and his assistants. The greater part of the Broadway side is occupied by the treasurer's department. The view from these front windows is superb, being entirely uninterrupted and looking across North river, Jersey City, and westward indefinitely—a very suitable situation, as it will enable Mr. Watson, whenever collections are slow, say in Idaho or Nebraska, to step to the window and see what the trouble is. The auditing department has the northwest corner, with a great wealth of windows facing west and north and, on a small court, to the east, so that even the bookkeeper in the remotest corner will not only have all the light he wants, but the particular kind of light that he may prefer. The building has twelve elevators, six "express" and six "locals," so that the twelfth floor has the best elevator service in the building. In addition to providing large and commodious offices for the entire organization, generous provision has been made for the convenience and comfort of out of town customers, who will find not only desk room and conference rooms at their disposal, but the best possible telephone and messenger service and other facilities to which they will all be made most welcome.

MARION INSULATED WIRE AND RUBBER CO.

THE factory of this new company, at Marion, Indiana, is about completed, and some of the departments are already in operation, but they have yet some machinery to install, on account of delay in obtaining the same from the makers. The company advised THE INDIA RUBBER WORLD late in March that they hoped to be in full operation within 30 days.

INTERNATIONAL RUBBER MANUFACTURING CO.

[See THE INDIA RUBBER WORLD, March 1, 1904—page 213.]

AT a meeting of creditors of this company, at Hoboken, New Jersey, on March 14, in bankruptcy proceedings, William T. Baird, who on December 7 last had been appointed receiver for the company, was duly elected trustee in bankruptcy, and accepted the trust. It has since ordered by the New Jersey court of chancery that on April 4, at 10 A. M., at No. 15 Exchange place, Jersey City, the creditors and shareholders of the corporation show cause, if they have any, why an order should not be made directing William T. Baird as receiver to present his account and report, and be discharged as receiver, the residue of the assets to be turned over to William T. Baird as trustee in bankruptcy.

CONSOLIDATED RUBBER TIRE CO.

THE company's earnings for the year 1903 were sufficient to permit of the payment on April 1 of 1½ per cent. on their outstanding 4 per cent. debenture income bonds, through the Manhattan Trust Co. (New York), agent for the bondholders under the agreement of April 1, 1901. The annual meeting of the shareholders will be held on May 2.

NEW INCORPORATIONS.

THE Falcon Rubber Co. (New Haven), February 29, 1904, under Connecticut laws, to manufacture druggists' and surgical rubber goods; capital, $60,000. Organization effected March 3. *Directors:* Patrick J. Cronan, Lewis C. Warner, Andrew R. Bradley, Francis P. Bush, Benjamin L. Coe, Frederick S. Ward, Charles E. Langdon, Dennis B. Martin, and Albert C. Coe. *Officers:* Albert C. Coe, president; Francis P. Bush, treasurer; Charles E. Langdon, superintendent; Dennis B. Martin, manager of sales. Mr. Coe has been connected for 18 years past with L. Candee & Co., rubber manufacturers, of New Haven, in executive positions. Mr. Bush has been identified with important manufacturing interests. Mr. Langdon is also a practical rubber manufacturer, who was for some years connected with the Seamless Rubber Co. (New Haven), manufacturers of druggists' sundries. Mr. Martin is well equipped for the position of sales manager through his wide acquaintance with wholesale trade.

=The Davie Rubber Co., Inc., February 17, 1904, under New Jersey laws, to make and deal in rubber horseshoe pads; capital, $20,000. Succeeds the firm of Davie & Co., patentees of the Davie hoof pad, Camden, New Jersey. Officers: Hewlings Lippincott, president; H. F. Davie, vice president; Robert M. Lippincott, secretary and treasurer.

=New York Pneumatic Horse Collar Co., February 23, 1904, under New Jersey laws; capital $200,000. Incorporators: Alexander Hamill, No. 130 East Twenty-third street, New York; George W. Flaacke, Jr., and A. Livingston Norman, lawyer, No. 25 Broad street, New York. Registered office in New Jersey, No. 1 Montgomery street, Jersey City. Messrs. Flaacke and Livingston have been identified hitherto with companies incorporated in New Jersey to exploit the rubber horse collar patent at one time controlled by the United States Pneumatic Horse Collar Co., an unsuccessful enterprise.

=Nelson Crosskill Corporation (Danvers, Massachusetts), February 19, 1904, under Massachusetts laws, to manufacture rubber cements; capital, $5000. Incorporators: Nelson Crosskill, Wellesley, Mass.; George W. Kent, Providence, R. I.; William L. King, Somerville, Mass.

Maine Rubber Shoe Co. (Portland, Maine), March 26, 1904, under Maine laws; capital, $10,000. Objects, to deal exclusively in rubber footwear made by the Hood Rubber Co. Directors: W. H. Given, George E. Bird, A. C. Berry, and J. H. Parsons. The president and treasurer and manager of the company is W. H. Given, for some years connected with the Pacific coast trade of the Boston Rubber Shoe Co., and later with the enterprise Rubber Co. (Boston). The address of the Portland store is Nos. 82-92 Gross street.

=Elliott Manufacturing Co., February 23, 1904, to manufacture golf balls and rubber goods; capital authorized, $125,000. Incorporators: Charles B. Elliott, Eva C. Elliott, and Joseph B. Wright. C. B. Elliott is president and treasurer and J. B. Wright secretary. The company have acquired a factory at Menlo Park, New Jersey, and are prepared to make dress shields, hospital sheeting, dental dam, Gutta-percha tissue, and the "Elliott Get There" golf ball—a low priced rubber cored ball. Registered office: No. 43 Paterson street, New Brunswick, New Jersey.

=State Rubber Co. (Boston), February 27, 1904, under Massachusetts laws; capital, $50,000, of which $40,000 preferred and $10,000 common. Officers: Stoughton Bell, Cambridge, president; William J. O'Donnell, Boston, treasurer; J. M. P. Wallner, Boston, clerk. Mr. Bell informs THE INDIA RUBBER WORLD that the company's plans are not ready for announcement to the public.

=First Rubber Co. (Chicago), March 16, 1904, under Illinois laws, to manufacture rubber goods; capital, $10,000. Incorporators: William C. Boyden, Willard Moffett, and Robert S. McClure.

=Maryland Rubber Co. (Baltimore), March 16, 1904, under Maryland laws, to do a general business in dealing in rubber goods; capital, $25,000. Incorporators: Samuel H. Jones, William M. Harman, Jr., George A. Eldridge, Charles G. Baldwin, and Rignal W. Baldwin.

=Potomac Rubber Co. (Baltimore), March 14, 1904, under Maryland laws, to deal in rubber goods; capital, $1000. Incorporators: Silas M. Fleischer, Abram J. Ulman, Edwin S. Drexel, Julius H. Wyman, and Robert E. Gerhardt.

=General Rubber Co. (Newark, New Jersey), March 25, 1904, under New Jersey laws, to manufacture rubber goods; capital, $2,000,000. Incorporators: Edward A. Day, Morristown; William D. Kellogg, Elizabeth; and Jerome T. Congelton, Newark —all in New Jersey.

=Elmira Rubber Co. (Elmira, New York), March 25, 1904, under New York laws, to deal in boots and shoes and rubbers; capital, $10,000. Incorporators: John Keefee, M. H. Murphy, and M. A. Kelly—all of Elmira.

TRADE NEWS NOTES.

THE Republic Rubber Co. (Youngstown, Ohio) announce the successful test of their "White Shield" brand of fire hose by the fire department of New York city. The announcement refers to the 49,100 feet of hose sold to the city as reported in THE INDIA RUBBER WORLD January 1, 1904 (page 137). The company advise that though the specifications required by the city were unusually exacting, their "White Shield" hose stood the tests in every detail as to cover, duck, friction, and brand.

=Replying to inquiries regarding the ultimate disposal of the Cable Rubber Works, recently bought by L. C. Chase & Co., the company state that they will undoubtedly take the machinery out and have it installed at their factory at Reading, Massachusetts, after which the buildings of the Cable company will be put on the market.

=Charles W. Harris, having disposed of his interest in the Milwaukee Rubber Works Co., has taken charge of the carriage tire department of The Republic Rubber Co. (Youngstown, Ohio). It is understood that business prospects in this department are very encouraging.

=The Goshen Rubber Works (Goshen, Indiana) on March 2 filed with the secretary of state of Indiana a certificate of increase of capital from $100,000 to $200,000, in accordance with the plan adopted at their last annual meeting and reported in THE INDIA RUBBER WORLD of December 1, 1903 (page 97).

=The Boston Woven Hose and Rubber Co. have recently built a large addition to their brass foundry, to take care of their increased business on couplings, nozzles, and hose fittings. With the addition of several new turret lathes and automatic machines, they are now in a position to make prompt delivery on all spring orders.

=The Standard Underground Cable Co. (Pittsburgh) during the last few years have laid many miles of underground cable in Baltimore, for various telegraph and telephone companies and the street railways. The various installations are referred to as having been uninjured by the recent disastrous Baltimore fire, except in cases where exposed ends of cables were injured.

=L. Candee & Co. (New Haven, Connecticut), it is reported, will close their factory on March 31, for the purpose of installing new engines, which work, it is estimated, will require about four weeks.

=A pending suit is that of the Hartford Rubber Works Co. *v.* Pennsylvania Rubber Co., for alleged infringement of United States patent No. 631,803, granted August 29, 1899, to Frank Mallalieu, for the "manufacture of inflatable tubes." It is applicable particularly to tire inner tubes, and covers the "dog's ear" or envelope fold form of tube. It is reported that the case will be settled out of court.

=J. C. Wilson has resigned as president of The India Rubber Co. (New Brunswick, New Jersey), and at last accounts his successor had not been elected.

=F. H. Turner resigned as treasurer of the Hartford Rubber Works Co., on March 15, to become president of the Standard Foundry Co. of Hartford. William H. Seward, Jr., factory manager of the Hartford Rubber Works Co., has been chosen treasurer to succeed Mr. Turner, and will discharge the duties of both positions.

=The Philip Carey Manufacturing Co. (Lockland, near Cincinnati), will, it is reported, make a considerable addition to their already large asbestos goods factory, in view of the increasing demand for their fireproof products. The new factory will be devoted to asbestos roofing.

=The latest advertising novelty designed by Mr. John P. Lyons, this time calling attention to the Candee rubbers, is the likeness of a beautiful girl swinging in a very comfortable appearing hammock. That the illusion may be more perfect, the poster is mounted on card board so that the hammock may be swung in any office, where its fair occupant calls attention to the merits of the goods advertised.

=The copartnership existing hitherto under the name of the Elastic Tip Co., at No. 370 Atlantic avenue, Boston, has been dissolved. The business will be continued under the same style by George R. Stetson, one of the partners.

=A. N. Hammerstrom, former purchasing agent of the Simmons Hardware Co. (St. Louis), has accepted the position of business manager of the Trenton Rubber Manufacturing Co. (Trenton, New Jersey).

=Mr. William J. Gorham, president of the Gorham Rubber Co. (San Francisco), is now in Japan, presumably to secure from the Japanese government a goodly share of the orders for rubber blankets and other equipment that the war has developed.

=Arthur C. Squires, of Akron, Ohio, is not now connected with any rubber manufacturing concern, but has placed himself at the service of the whole rubber trade as consulting expert in general lines.

=The Indiana Insulated Wire and Rubber Co. (Jonesboro, Indiana) are reported to have shipped lately a good sized lot of telephone cable to Japan, and a ton of rubber insulating tape to each of the ports of Berlin, Paris, and Alexandria (Egypt).

=The Dayton Rubber Co. (Dayton, Ohio) have been busy for some time past installing machinery, and when the work is complete they expect to have one of the best arranged mechanical rubber goods plants in the country. It is understood that already they have some encouraging orders in hand.

=The rubber firms included in the membership of The Motor and Accessory Manufacturers, organized at Cleveland, Ohio, on March 2, are The B. F. Goodrich Co., the Diamond Rubber Co., Hartford Rubber Works Co., Fisk Rubber Co., Morgan & Wright, G & J Tire Co., and the National Cement and Rubber Manufacturing Co.

=Harrison C. Frost, who for some time past has been connected with the Quaker City Rubber Co. (Philadelphia), has severed his connection with that firm.

=The Brown Shoe Co. (St. Louis) have called a meeting of stockholders to increase their capital stock from $1,000,000 to $2,500,000. This will make it the largest capitalized shoe company in the world. The great popularity of their "Star 5-Star" shoes and rapid increase of $1,500,000 per year in business requires this large capital. In December last the company celebrated their twenty-fifth anniversary.

=The Bowers Rubber Co. (San Francisco), are running their factory overtime to catch up with the press of orders that have been booked in the past few months.

=W. F. Ridge, some time in the factory of Morgan & Wright (Chicago) and more recently general foreman of the tire department of the International Automobile and Vehicle Tire Co. (Milltown, New Jersey), has accepted a like position with the Goshen Rubber Works (Goshen, Indiana), who are now planning to extend their work in tire lines.

=The National India Rubber Co. (Bristol, Rhode Island) are mentioned as having a good trade for their insulated wire, for electric lighting purposes, with Japan. The wire is shipped direct from Bristol to Yokohama. The palace of the mikado is said to be wired with the product of the National company's factory.

=New hydraulic elevators have been placed in the north and south towers of the factory of the Beacon Falls Rubber Shoe Co. (Beacon Falls, Connecticut).

PERSONAL MENTION.

THE echoes of the very successful dinner of the New England Rubber Club, reported in THE INDIA RUBBER WORLD last month, are still to be heard, and mark it as one of the most notable trade dinners ever held in Boston. Aside from the excellent work of the dinner committee, the interest shown by the president, the Hon. L. D. Apsley, who journeyed to Washington expressly to secure such distinguished speakers as Secretary Moody, is fully appreciated by all.

=Colonel Theodore Ayrault Dodge, whose connection with the India-rubber industry is yet well remembered, has devoted himself of late to his literary work. He is the author of a series of volumes entitled "Great Captains," the first of which was devoted to Julius Cæsar. His publishers, Messrs. Houghton, Mifflin & Co. (Boston), now announce a new work in this series, on "Napoleon," in four volumes, of which the first two are in press.

=Mr. Richard A. Leigh, who has patented a process for vulcanizing the product of the so called Colorado rubber plant, was formerly a well known superintendent of rubber factories in the East. He was ordered to Colorado because of a slight lung trouble, from which he has fully recovered.

=Herr Hans I. W. Clouth, of Franz Clouth, Rheinisch Gummiwaaren-Fabrik m. b. H. (Cologne-Nippes, Germany), after several weeks spent in visiting rubber manufacturers in the United States, has returned home.

=Mr. Herbert Laws Webb, after a residence of some fifteen years in New York, has returned to London, where he has opened an office, at 35, Old Queen street, Westminster, S. W., for practice as consulting electrical engineer. Mr. Webb was a valued contributor to the columns of THE INDIA RUBBER WORLD, in its earlier years, and while it still bore the sub title "*and Electrical Trades Review*."

=Mr. E. I. Aldrich, selling agent of the Hood Rubber Co. (Boston), is on his way to Europe for a brief vacation.

=Ohio newspapers of March 11 contained complimentary mention of the bravery of Captain Claude C. Hooven, of the State militia, in connection with a disturbance at Springfield which made it necessary for Governor Herrick to call out troops. Captain Hooven is one of the incorporators of the new Dayton Rubber Co.

=Mr. Charles H. Dale, president of the Rubber Goods Manufacturing Co. (New York), has just returned from a winter trip to Florida.

=Mr. Arthur F. Townsend, president of the Manhattan Rubber Manufacturing Co. (New York), has returned from a business trip to Cuba.

=Mr. George A. Lewis, president of the Beacon Falls Rubber Shoe Co. (Beacon Falls, Connecticut), has been spending the Winter in Jamaica, West Indies.

=Edward A. Murphy, of Jersey City, who is mentioned as a candidate for the New Jersey legislature, is said to intend, in the event of his election, to introduce a bill to require all railway companies operating overhead lines in cities in that state to deaden the noise of their trains to have the tracks laid on cushions of rubber.

=Mr. William J. Cable, of Boston, is rumored to have gone to Argentina for permanent residence, his family having joined him there.

ADVANCE IN RAW MATERIALS.

A CONSIDERATION of the following advances in the cost of the raw materials of the rubber manufacture has influenced the makers of mechanical rubber goods in dealing with the present and prospective prices of their products—the figures having been compiled by a member of the trade:

FINE PARA.

Average price per pound for 18 years (1885-1902 inclusive)	.76
Average price for 18 months past	$1.02 to 1.12
Present price	$1.12
Increase, present price over 18 years' average	47%

COARSE PARA.

Average price for 7 years (1896-1902 inclusive)	.53
Average price for 18 months past	.58 to 69
Present price	.69
Increase, present price over 7 years' average	30%

COTTON DUCK.

Range of prices for 9 years (1895-1903 inclusive), in cents per pound	12¼ to 17
Price 1903	15
Range of prices for the past 6 months	22 to 26
Present price	26
Increase, present price over 9 years' average	73 %

COTTON HOSE YARNS.

Normal prices for many years past	16 to 18
Present prices, according to number of yarn, etc	28 to 32
Increase, about	76 %

It is pointed out that owing to the short time in which crude rubber now reaches the market, it is very green. Consequently the present shrinkages are very much greater than was the case in connection with better seasoned rubber of former days. This is a fact that adds very materially to the cost of the rubber before it can be manufactured into goods.

ANOTHER ADVANCE IN RUBBER SHOE PRICES.

THE news of chief interest of the month in the rubber footwear branch was the announcement, on March 18, by the United States Rubber Co., of a revision of their discounts, with the result of advancing the net prices of boots and shoes about 7 per cent. over the rates in effect since February 1. The official announcement follows:

NEW YORK, March 18, 1904.

Because of the advance in cost of crude rubber since our February announcement, on and after this date our prices are advanced as follows:

The first discount will be 25 instead of 30 per cent. off, and on Colonials we drop one discount of 5 per cent., other discounts remaining the same, but all subject to future changes. On Tennis we change the discount from 12 1-2 to 8 per cent. If you have heretofore received from retail dealers actual regular detail orders exceeding your detail order to us, your case, upon satisfactory proof, will receive our careful consideration. UNITED STATES RUBBER CO.

The following table will show at a glance the different schedules of discount in effect since last summer, the first line of figures after each brand giving the discounts of June 1, 1903, the second line those announced February 1, 1904, and the third line the existing rate:

First quality (except Woonsocket and Meyer)	35@5@3 30@5@3 25@5@3
Woonsocket and Meyer brands	35@ 5@5@3 30@10@5@3 25@10@5@3
Second quality (except Rhode Island)	35@10@5@3 30@ 5@5@3 25@ 5@5@3
Rhode Island brand	35@10@5@5@3 30@10@5@5@3 25@10@5@5@3
Colonial brand	50 45@5@5 45@5

The comparative statement which follows will give an idea of the fluctuations in net prices of rubber footwear for seven years past. The prices are given of plain sandals and of short boots, both list and net, under the discounts ruling at the various dates in the table.

DATES.	PLAIN SANDALS. List.	Net.	SHORT BOOTS. List.	Net.
Apr. 1, 1897	$0.70	**$0.50**	$3.00	**$2.14**
Oct. 1, 1897	.70	**.53**	3.00	**2.25**
Apr. 1, 1898	.85	**.61**	3.50	**2.49**
Nov. 1, 1898	.85	**.64**	3.50	**2.63**
Apr. 1, 1899	.90	**.64**	3.80	**2.71**
Nov. 1, 1899	.90	**.68**	3.80	**2.85**
Apr. 1, 1900	.88	**.63**	4.20	**2.99**
Nov. 1, 1900	.88	**.66**	4.20	**3.15**
Jan. 3, 1901	.88	**.63**	4.20	**2.99**
Feb. 1, 1901	.88	**.51**	4 20	**2.46**
Apr. 1, 1901	.88	**.49**	4.20	**2.33**
Jan. 1, 1902	.95	**.54**	4.50	**2.55**
Jan. 1, 1903	.92	**.52**	4.30	**2.44**
Jun. 1, 1903	.92	**.55**	4.30	**2.58**
Feb. 1, 1904	.92	**.59**	4.30	**2.77**
Mar. 18, 1904	.92	**.64**	4.30	**2.97**

At the beginning of the season it was intimated that one 5 per cent. discount from each brand was to be dropped on June 1, as usual, and it is not stated that the increase in rates going into effect on March 18 will obviate a further advance in June.

The other rubber shoe manufacturing concerns have revised their prices practically to correspond with the action of the United States Rubber Co. Herewith is the formal notice to their customers of the Apsley Rubber Co.:

However much we regret it, we are obliged with others, on account of the still further advance in crude rubber, to advance our prices again. The conditions warrant this advance and it is absolutely necessary if we are to maintain the quality of our goods.

The discounts from this day, subject to change without notice will be:

Apsley Brand, 25, 5 and 3.

Hudson Brand, 25, 5, 3 and 10.

Middlesex, 45, 5, 8 and 8.

Terms and conditions of sale remain the same. Very respectfully,

APSLEY RUBBER CO.

The Hood Rubber Co. and the Beacon Falls Rubber Shoe Co. have issued, under date of March 19, new net price lists, to be in effect until May 31, 1904, the same involving a rate of advance corresponding to that made by the other companies.

* * *

"THE sales of the United States Rubber Co. this season have been the largest in its history," said an official of that corporation to THE INDIA RUBBER WORLD. President Colt made the statement a short time ago that the sales for 1903 amounted to $30,000,000 which was $3,000,000 more than for 1902 and $5,000,000 more than for 1901. Since the first of the year the sales have continued to grow. This was especially true during January, for there was of course some falling off in February. I say of course, because the prices on all our goods were advanced about 7½ per cent. on February 1, and the trade, having every reason to know that advances would be made on that date, rushed in large orders in anticipation. Orders are now coming in at a lively rate, and most of our factories have enough business ahead to keep them going for four months, and apparently they will be busy all summer. [Another advance has since been made.]

"In regard to stocks, it is no exaggeration to state they were probably never more thoroughly depleted at this season. In the hands of the manufacturers there is practically nothing, all sold out so that not even emergency orders can be filled. Our salesmen give us to understand that the jobbers are no better supplied. They have even got rid of any old goods that in some instances were carried over. Many of them have been obliged to curtail the orders of their customers because they did not have enough goods and could not get them. It is also pretty well understood that the retailers are sold out, and this is evidently the impression of the jobbers from their inclination to purchase increased amounts for the coming season. Taken all together, the rubber shoe people can bless the winter, not only for favors past but for favors that are to come. Four months of continuous wet and snow compels people to use rubber footwear. This year the business of this company will undoubtedly show a big increase in the money value of its sales, because we shall probably sell more goods, and we shall sell at advanced prices. But this does not mean that the company will make any more profit. In fact it may not make as much, on account of the advance in the cost of crude rubber and cotton duck. The cost of all materials is higher, we think, even higher than the ratio of our advance."

* * *

MR. WILLIAM MORSE, president of the Merchants Rubber Co. (New York), was also optimistic as to the situation. "The past season," said he, "has been the greatest ever known. Everybody sold everything they could get hold of. Four months of hard winter made the people buy of the retailers, forced the retailers to reorder of the jobbers, compelled the

jobbers to take all they could get from the factories. Now, at the end of the winter, nobody, retailer, jobber, or manufacturer, has any goods on hand. It is a lovely situation for the man in the business. The past season has not only been the best we have had, but the character of the weather has been such that an enormous quantity of heavy goods was taken. The snow has been deep all over New England and the Eastern states, and light shoes did not answer. The people had to buy arctics and felt lined shoes and boots. The sale of boots was not only larger than ever before known, but the buyers were not even satisfied with the ordinary short boots but wanted the 'storm' goods—those that come up to the thigh. There are practically no boots to be had anywhere now. These goods are of course high priced and so the volume of business is largely swelled, and in addition to that the quantity of rubber used was greatly increased. The demand for rubber to replace these heavy goods will be tremendous, and I do not look for much lower prices. Right now the jobbers are busy taking orders from the retailers, and they have their hands full placing them. I have never known such a demand for goods, and I have never known the jobber to have so few goods to sell.

"There is another branch of the trade that has grown enormously, entirely apart from the question of weather. This is the tennis shoe business. In all lines of these goods, for tennis, boating, bowling, hand ball, or any other athletic sport, the development is phenomenal. The old leather shoe with a coating of rubber on its sole is no longer in vogue. People now want the regular canvas shoe with an all rubber sole, and the factories making these goods are very much rushed. Prices on all this class of goods have been advanced very considerably, but that is not in any way diminishing the orders. The 'Champion' tennis shoe, which may be regarded as a standard, has heretofore always retailed to the customer at 50 cents. He will probably have to pay 65 for it this season, and even at that there is not a great deal in it for the retail dealer. High prices of material are of course responsible for these increases, but in an article in such popular demand it will not cause any falling off in sales. If a tennis player needs a shoe he will not go without it on account of a few cents additional cost. The sale of this kind of shoe is fully five times as great now as it was five years ago, and is increasing all the time. The increase in boating and bowling and the development of basket ball and other gymnasium games is responsible for this growth. I look for it to continue."

* * *

IN the retail trade the same report was made as to the depletion of stocks of rubber shoes on account of the strenuous winter weather. The managers of the shoe departments of several of the large New York stores reported to a representative of THE INDIA RUBBER WORLD that they had been kept more than busy keeping any goods at all on their counters. There was not a variation in the statement that the demand for rubber footwear had been unparalleled.

"What would you expect?" asked the shoe man at one of the largest department stores. "When we have had four solid months of snow and slush and ice in the city—not here on the avenue or on Broadway, where the street cleaners are frequently seen, but in the streets where most of the people live—it is not surprising that retail merchants are out of goods. My stock that I had set aside for the winter was gone by January 1, and since then I have sent in many emergency orders and have bought repeatedly, but still I have only a few odds and ends left. The demand has been continuous and it began before Thanksgiving. All kinds of rubber goods have sold unusually well, but of course footwear has been most active. A mild winter, even when there is snow and wet, does not force the people to buy, because as long as it is mild they think the moisture will not last long and they can get along without rubbers. But when the snow falls, and then falls and falls again without melting, and the temperature remains below freezing, and the streets remain icy, no makeshifts will do, and they rush for rubber shoes. I know the jobbers are out of goods on account of the difficulty of buying, and I know the retailers are out of goods on account of my own condition, but I look for big sales to consumers next year, and I am going to order heavily. It is inevitable that with such continuous bad weather that the rubber shoes and boots in the hands of the users have been largely worn out. People who had rubber footwear at the beginning of the season, or who bought early in the season, have undoubtedly worn out what they had, and while many are stretching along in a dilapidated condition because spring is at hand, they will be compelled to buy again as soon as the first storms come in the fall. For this reason I do not feel that the retailers need believe that the public is stocked up. While the dealers have sold out, the users have worn out, so everybody will have to start fresh. I look for big sales next November and December, unless the weather is abnormally dry and pleasant."

* * *

A BOSTON report states: "The leather shoe trade has suffered and the rubber footwear trade has gained by the weather since the middle of November. Throughout the West the demand for rubbers started in early but in the Eastern section of the country there was no rush to the demand until just after Christmas, and from that time to this it has been necessary to wear rubbers almost every day. Old shoes have been good enough to wear under rubbers. This is where the shoe trade have been badly hit."

A Baltimore report says: "Since the fire there has been an unusual demand for rubber shoes, due to the inclement weather, particularly of the past few days, and also to the fact that few car lines are running, and consequently people have had to walk. Many of the retail rubber houses were burned out, and a shortage resulted, which has been very hard to fill."

* * *

UNITED STATES RUBBER CO.

THE company have retired another $1,000,000 of the 5 per cent. funding notes issued in 1902, leaving $10,000,000 due in March, 1905, which remainder, it is understood, have been funded into bonds running to 1908. The object of these notes was to retire the former floating debt of the company and the constituent companies, and to provide working capital, and the result has been to strengthen the financial position of the company, that it is now confidently expected that a diversion of a portion of the net earnings to the shareholders may be possible this year. The suggestion is made that the company may be able to put the preferred shares on a 4 per cent. dividend basis. One favorable situation is that the company has made a new departure, to the extent that they have reserved the right this year to advance the prices of goods or may be warranted by an advance in the cost of raw materials. Last year, while adhering throughout to prices made at the beginning of the year, although the volume of business was exceptionally large, the company was prevented from securing an adequate profit on the business.

THE Russian-American India-Rubber Co. (St. Petersburg) have been permitted to transfer from their reserve fund, of 2,030,081 rubles, to their capital stock account, 1,500,000 rubles.

THE TEXTILE GOODS MARKET.

SINCE the last issue of THE INDIA RUBBER WORLD the staple cotton market has been the center of more attention, perhaps, than at any time since the civil war, because of the collapse of the "bull" cotton firm of Daniel J. Sully & Co. (New York) on March 18. That day saw prices on spot cotton in New York and New Orleans ruling strong; the quotation here that remained unchanged was 15 cents. The futures in this market for the active months stood above 15 cents, May being 15.22 cents. Trading from the opening was steady, and it was not until the middle of the afternoon of that day that the "bulls" saw that their Black Friday had come. At 2 P. M. the superintendent of the Cotton Exchange announced the suspension of D. J. Sully & Co.

The "bears" then began their assault upon the market, but the break that followed did not drop to a lower level by what is properly termed a "decline," but dropped off precipitately from 200 to 250 points on the active futures, and on all futures the decrease in values was material. Sully & Co. at the time held 300,000 bales of cotton, the depreciation of values to the firm representing a loss of about $3,000,000. The failure of Sully & Co., while unexpected to the public in general, was looked for by a few of those on the "inside," but it had the effect of clarifying the staple market as nothing else at that time possibly could. The suspension was not forced by the fact that cotton was worth less than 16 to 17 cents a pound. It was brought about by the refusal of the purchasing public to take the raw material and finished product fast enough to equalize the supply and demand. This deduction is clearly borne out by the fact that instead of dropping back to 12 cents, which price has been considered by many to be the true value of cotton, the actual spot market reacted about 2 cents per pound, and to-day it is quoted at about 15 cents in the local market, with offers not heavy at this price.

It can thus be stated with safety that cotton can be sold freely in large quantities at this figure, showing that the failure of Mr. Sully has clarified the atmosphere on at least one important point—*i. e.*, the value of cotton at the moment. If it is worth in spot 14½ to 15 cents, its value will naturally increase from now until the conditions of the new crop are somewhat in evidence. The failure of this "bull" firm has not added a single bale of cotton to the visible supply, and it will be well for the consumers of manufactured stock to realize this fact.

The trend of the goods market has not changed materially since last writing, notwithstanding there has been so much interest and excitement in the staple division. Cotton duck, such as is used by the mechanical rubber manufacturers, is selling at 26 cents per pound, the same as a month ago. Rubber concerns who were fortunate enough to place their contracts last fall for their year's supply at from 17½ to 20 cents, are now making their requisitions for the goods, and the duck mills have been delivering as promptly as possible. These mills had their cotton purchased early in the season, and have not been compelled to replenish, except in special cases. It is said that the one corporation still has about 50,000 bales on hand, which is about one-third of its entire consumption. The mills are not compelled to run at full capacity, and are curtailing their consumption so as to make it carry them through until the new crop materializes. It is hardly possible that the price of duck will advance further, as it is not thought, that the mills will have to pay more for new crop cotton than they have been paying.

As they are situated to-day, it is safe to say that they will not spin "futures," and rather than allow stocks to accumulate they will stop their looms.

Not since last June have they been compelled to make up stock, until the present time, and there is not much likelihood that the market will be allowed to carry much spot duck.

There has been a steady, although comparatively light demand for sheetings from the manufacturers of boots and shoes, at ruling prices, which have not materially changed since last reports. They have bought only such quantities as they have required from time to time, making no effort to provide for the future. They believe that prices are as high as they are likely to go, and by waiting they will be in a position to avail themselves of lower rates in case the market eases off. Felts have been in slow demand, although manufacturers report having had a good year taking it as a whole. The high value of wools has been reflected in the prices asked for felts, and there is nothing at present that warrants the belief that prices are going to be any cheaper for some time to come. Raw materials of every class are higher than for many years, and manufacturers of felt and knit boots do not look for lower prices soon. The yarns used in these boots are spun from carpet wools, which have not been so scarce and high for many years, and the recent addition of an extra duty has added to the cost of importing them. The present Russo-Japanese war is having the effect to check exports of wool from the Russian empire, and other Oriental countries. These wools have advanced during the past year from 20 to 50 per cent. per pound, with few offerings now. The gradual development of sources which require these wools threaten to create a great scarcity of the material even under normal conditions.

Following are the prices of middling upland spot cotton at the leading selling ports on the different dates mentioned:

	New York.	New Orleans.	Liverpool.
March 5	16.25 cents.	15⅛ cents.	8.32*d.*
March 12	16.65 cents.	16 cents.	8.70*d.*
March 19	14.50 cents.	14⅜ cents.	7.74*d.*
March 26	15 30 cents.	15⅛ cents.	8.08*d.*

The range of prices on the various lines of cottons used by the rubber trade will be found below, having been quoted up to date:

PRICES CURRENT FOR SHEETINGS FOR THE RUBBER TRADE.

36" Household Favorite	6¼ cents.
40" Household Favorite	7 cents.
36" Henrietta, L. L.	6 cents.
39" Henrietta, H.	(net) 5¾ cents.
38½" Henrietta, S.	(net) 5¼ cents.
40" Henrietta, P. W.	7½ cents.
36" Florence C.	4¼ cents.
40" Majestic C. C.	(net) 8½ cents.
40" Majestic B. B. B.	" 8 cents.
40" Majestic B. B.	" 7½ cents.
40" Norwood	" 6½ cents.
36" India, A. A. A.	" 7¼ cents.

Sheetings.			
40" Highgate	6¾c.	40" Selkirk	8½c.
40" Hightown	7 c.	40" Sellew	8¼c.
40" Hobart	7¼c.	48" Mohawk	11 c.
40" Kingstons	8 c.	40" Marcus	6½c.
39" Stonyhurst	6 c.	40" Mallory	6 c.
39" Sorosis	5¾c.	36" Capstans	4½c.
40" Seefeld	9¼c.	*Osnaburgs.*	
40" Shamrock	10 c.	40" Iroquois	10 c.
Ducks.			
40" 7 oz. Crawford	10 c.		
40" 8 oz. Chartres	10½c.		
40" 10 oz. Carew	13½c.		
40" 11 oz. Carita	15 c.		

ON March 8 the program of the meeting of the Commercial Club of Kansas City, Missouri, included an address on "Rubber From a Historical, Histological, Botanical and Commercial Standpoint," by L. D. Havenhill, member of the Kansas City section of the American Chemical Society.

AT a meeting of the New England section of the American Institute of Electrical Engineers, at Boston, on March 2, an illustrated lecture was delivered by Mr. H. A. Morss, of the Simplex Electric Co., on "The Manufacture of Insulated Wires and Cables."

MR. BANIGAN AS A LABOR AGITATOR.

THE late Joseph Banigan, who started life as a mixer in a rubber mill at $1.25 a day and no "overtime," and who became one of the wealthiest rubber manufacturers in America, once told in strict confidence the following personal experience:

"When I was a grinder man there was a man worked beside me who was a natural born organizer and politician. He had great ideas about the rights of the working man, and proved to me over and over again that no capitalist could exist if it was not for labor; that it therefore followed that the laborer should have more say about what he did, that he should work fewer hours, get better pay, and in fact, be a sort of partner of the boss. One of his particular ideas was that a mill man should work only at mixing and warming, that a man who ran a calender should not be asked to do anything else. If a man was put on the heel press, he should stay there at full pay, even if the press was idle, and not be required to sort lasts, or help in the varnish room. His ideas got a strong hold on me until I talked them over with my mother. She soon put a 'bee in my bonnet.'

"'Joseph,' said she, 'do any blessed thing the boss tells you. If you stay on the mixing mill, a dollar and a quarter a day is all you will earn, and all you will get, till the day of your death. Learn to do everything. Stay in the factory till morning if necessary, and you will get more money and may be boss yourself some day.'

"That was the turning point in my career," said Mr. Banigan. "I simply took hold of every job and mastered it, and in time became, as you know, fairly successful."

"What about your friend, the man with the ideas?" he was asked.

"Poor fellow! He didn't get on very well. He was employed by various mills, but somehow he never had a good job long. At present—I don't know as I should tell it, he is—well, he is getting $2 a day in one of my mills, and I am afraid he doesn't quite earn it. But he is an authority on the ideal relations between labor and capital," said Mr. Banigan, with a twinkle in his eye.

FOR ALL BLACK RUBBER COMPOUNDS.

THE many uses to which bituminous products have been put in compounding India-rubber have induced the largest producer of these products in the world—the Barber Asphalt Paving Co.—to establish a New York testing laboratory, and to retain for its director Mr. Clifford Richardson, who has spent several years in investigating the physical conditions of all sorts of bitumen. The result already is that this company, who have long been known to be the pioneers in the manipulation and processing in these materials, are able to-day to furnish products different from any on the market and in every way most uniform and satisfactory. In other words, this laboratory produces bitumens of almost any character that the rubber manufacturer may desire. For example, one of their products, the "Genasco M. R. Hydro-Carbon," made from the highest class of asphalt, is already getting a strong foothold in the rubber trade because of its marvelous adaptability to certain wants in the country.

REVIEW OF THE CRUDE RUBBER MARKET.

PRICES of crude rubber during March have been on a steady advance. There has been no reaction whatever in the majority of the grades. New Upriver fine began the month about $1.06 @ $1.07, and increased steadily until it closed about $1.10 @ $1.11. There was not a single setback or period of sagging. The same was true of other Pará grades, except that Islands was a trifle higher about the 18th or 19th of the month than at the close. New Islands fine opened about $1.03 and steadily advanced until it was sold at something like $1.09 @ $1.10 about the date mentioned, stocks being exceptionally light at that time. Subsequently the quotations eased off about 2 cents.

In Africans prices have steadily and rapidly advanced. Prime Lopori strip, which was thought to be high at 85 @ 86 at the first of the month, was hardly obtainable at less than 93 at the close. The Antwerp auction on March 18 disclosed the fact that the offerings were comparatively poor and small, and that the bidders were eager and numerous. Only 297 tons were offered, and this was mostly in small lots, with many inferior parcels. The valuation estimated was an average of 15 centimes above the sales of February, and the prices brought at the auction were from 50 to 55 centimes above the valuation. American firms bought very little, their bids for the most part being too low. One importer, for instance, sent a bid for 75,000 pounds at 2¼ cents above valuation, but the rubber he wanted sold at 4⅜ cents above valuation. Further details appear in another column.

There is very little crude rubber to be had on the market, in spite of the unusually large receipts during the past two months. Importers are sold out in advance of arrivals, and none of them is able to carry any stock. The manufacturers except a few of the very large ones, are believed to be without stocks and are eagerly inquiring for rubber, in many instances for immediate necessities. The big combination companies are fairly well supplied, having received the greater part of the recent heavy importations. The Rubber Goods Manufacturing Co. not only has its factories well fitted up, but has stored a large quantity in its new warehouse at Passaic, New Jersey. The United States Rubber Co. has been a large importer of rubber, and also a large buyer in the home market, and, it is understood, is fairly well supplied. A few other large companies are also apparently easy, but most of the smaller concerns are anxious seekers for crude rubber.

The official figures from the United States customs service indicate the heavy rate of importations of rubber of late, as compared with former years. The figures show the volume of imports of rubber, of all grades, for the first eight months July to February inclusive) of the three past fiscal years:

	Pounds.
July 1, 1901, to February 28, 1902	32,891,798
July 1, 1902, to February 28, 1903	34,579,484
July 1, 1903, to February 29, 1904	38,667,140

Taking into consideration the invoice values of the rubber imported, the average value of all grades, per pound, has been as follows:

July 1, 1901, to Februaay 28, 1902	49.3 cents.
July 1, 1902, to February 28, 1903	54.3 cents.
July 1, 1903, to February 29, 1904	67.9 cents.

The average import price for the last eight months would appear, therefore, to have been 37¼ per cent. higher than for the corresponding eight months two years ago.

Arrivals at Pará, of all grades, including Caucho, for the past four seasons, have been as follows, in tons:

	1900-01.	1901-02.	1902-03.	1903-04.
To December 31.	11,300	13,630	12,250	13,470
" March 31.....	21,820	24,530	23,540	*a*24,990

[*a*—To March 29, 1904.]

Following is a statement of prices of Pará grades, one year ago, one month ago, and on March 31—the current date:

PARA.	Apr. 1, '03.	Mar. 1, '04.	Mar. 31.
Islands, fine, new..... ..	87@88	102@103	107@108
Islands, fine, old.....	@	@	@
Upriver, fine, new.....	90@91	106@107	109@110
Upriver, fine, old..... ...	95@96	108@109	110@111
Islands, coarse, new	56@57	66@ 67	67@ 68
Islands, coarse, old....	@	None here	None here
Upriver, coarse, new.....	72@73	83@ 84	86@ 87
Upriver, coarse, old....	@	85@ 86	None here
Caucho (Peruvian) sheet.....	54@55	66@ 67	69@ 70
Caucho (Peruvian) ball.....	67@68	76@ 77	77@ 78

The market for other sorts in New York on which the advance has also been very material, is as follows:

AFRICAN.		CENTRALS.	
Sierra Leone, 1st quality	95 @96	Esmeralda, sausage...	76 @77
Massai, red.....	95 @96	Guayaquil, strip.....	67 @68
Benguella.	75 @76	Nicaragua, scrap	76 @77
Cameroon ball.....	65 @66	Panama, slab.....	57 @58
Accra flake.....	36 @37	Mexican, scrap	73 @74
Accra buttons	54 @55	Mexican, slab	54 @55
Lopori ball, prime....	96 @97	Mangabeira, sheet....	57 @58
Lopori strip, prime....	91 @92	EAST INDIAN.	
Ikelemba..... ...	96 @97	Assam.....	81 @82
Madagascar, pinky....	84 @85	Borneo.....	@

Late Pará cables quote:

	Per Kilo.		Per Kilo
Islands, fine.	6$700	Upriver, fine.....	7$900
Islands, coarse.....	3$700	Upriver, coarse.....	6$000

Exchange, 12 1/16 *d.*

Last Manáos advices:

Upriver, fine.....	7$800	Upriver, coarse.	5$700

Exchange, 12 3/32 *d.*

NEW YORK RUBBER PRICES FOR FEBRUARY (NEW RUBBER).

	1904.	1903.	1902.
Upriver, fine.....	1.01@1.07	84@90	72@79
Upriver, coarse.....	82@ 86	70@73	60@63
Islands, fine.	99@1.04	82@87	69@76
Islands, coarse	64@ 67	50@54	45@48
Cametá, coarse.....	63@ 67	52@57	48@50

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.

	Fine and Medium.	Coarse.	Total 1904.	Total 1903.	Total 1902.
Stocks, January 31....*tons*	63	1 =	64	253	1339
Arrivals, February.... ...	1830	697 =	2527	1609	1381
Aggregating.....	1893	698 =	2591	1862	2720
Deliveries, February.....	1791	685 =	2476	1563	2016
Stocks, February 29...	102	13 =	115	299	704

	PARÁ.			ENGLAND.		
	1904.	1903.	1902.	1904.	1903.	1902.
Stocks, Jan. 31....*tons*	565	155	510	590	1050	1230
Arrivals, February....	3680	4740	3075	765	1110	1105
Aggregating.....	4245	4895	3585	1355	2160	2335
Deliveries, February..	3810	4865	2535	975	1025	725
Stocks, Feb. 29..	435	30	1050	380	1135	1610

	1904.	1903.	1902.
World's visible supply, February 29....*tons*	2867	3945	5327
Pará receipts, July 1 to February 29.....	19,200	17,801	18,839
Pára receipts of Caucho, same dates.....	2304	1709	1696
Afloat from Pará to United States, Feb. 29..	903	1188	1073
Afloat rom Pará to Europe, February 29....	1024	1283	910

In regard to the financial situation, Albert B. Beers, (broker in India-rubber, No. 58 William street, New York) advises us:

"There has been a fair demand for paper through March, mostly from out-of-town banks, rates being 5½@6½ per cent. during the early part of the month, and dropping to 5@6 per cent. later, these rates being for the best rubber names, and those not so well known going rather higher in some instances."

Liverpool.

WILLIAM WRIGHT & CO. report [March 1]:

Fine Pard.—The market has been active and advancing, and prices are again 2*d.* per pound dearer. This advance has been largely due to the very heavy buying in Manáos and Pará for American account. According to our advices the shoe trade is now prétty well supplied with stock, and the mechanical trade is dull, which may have some effect later on. We still repeat there is nothing in the statistical position of this article to justify an advance, at this stage of the crop, of 6*d.* per pound in two months. Market closes barely steady, with sellers hard fine spot at 4*s.* 6*d.*, Islands 4*s.* 5*d.* Forward: A good business done at full rates, closing with sellers at 4*s.* 5¾*d.*

London.

MARCH 18.—Market for Pará continues strong; fair business done at firm to dearer rates, including fine hard on spot and forward delivery at 4*s.* 7½*d.* @ 4*s.* 8*d.* and sellers, and hard entre fine up to 4*s.* 6*d.* Fine soft cure sold at 4*s.* 6½*d.* @ 4*s.* 7*d.* for spot and near delivery and buyers. Negroheads in small supply; Scrappy sold at 3*s.* 7¾*d.* @ 3*s* 8*d.* for near delivery; Islands 2*s.* 10½*d.* Peruvian ball on spot at 3*s.* 4½*d.*; slab score, with buyers at 2*s.* 10*d.* Mollendo fine quoted at 4*s.* 6½*d.*

At to-day's auctions Mattogrosso virgin sheet sold at 4*s.*; mixed virgin and negroheads part dirty 3*s.* 8½*d.*; fair negroheads 3*s.* 4¾*d.* Colombian good to fine brown scrap, 3*s.* 4*d.* @ 3*s.* 5*d.* Madagascar fair to good pinky 2*s.* 7*d.* @ 3*s*, 2¾*d.* Majunga part dark coated 2*s.* 6*d.* @ 2*s.* 8½*d.* Mozambique 3*s.* 9¼*d.*; unripe ball 1*s.* 11½*d.* @ 2*s.* 2¼*d.* Lamu ball, good, 3*s.* 7½*d.*; fair, little sandy, 3*s.* 5¾*d.*

Ceylon.—Forty packages offered and sold, good to fine biscuits from Pará seed at 5*s.* @ 5*s.* 3¾*d*, small mixed rough, 4*s.* 6*d.*, fine pale scrap 3*s.* 11¾*d.* @ 4*s.* ¼*d.*, fair ditto 3*s.* 9*d.* @ 3*s.* 9¾*d.*, inferior sandy mixed ditto 2*s.* 2*d.* @ 2*s.* 4½*d.* [The highest price named above is equivalent to $1.29¼ per pound.]

Balata.—Thirteen bags Sheet offered and sold, mixed thin and thick at 2*s.* 2½*d.* 50 bales Block were bought in.

Antwerp.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The sale which took place on February 24 and for which 370 tons were catalogued, passed off with a firm tone. The prices averaged about 3 per cent. higher than the prices paid at the January sale. A good deal of the buying was again attributed to the United States. The principal lots realized prices as follows:

		Valuation.	Sold at.
70 tons	Upper Congo balls firsts.....*francs*	10.05	10.47½
21 "	Lopori firsts	10.	10.47½
11 "	Lopori seconds.....	8 75	8.90

Rubber Scrap Prices.

NEW YORK quotations—prices paid by consumers for carload lots—in cents per pound—show a slight decline from the last published prices, as follows:

Old Rubber Boots and Shoes—Domestic.....	6⅝ @
Do —Foreign.....	6 @ 6⅛
Pneumatic Bicycle Tires.....	4 @ 4⅛
Solid Rubber Wagon and Carriage Tires.....	7
White Trimmed Rubber.....	8½ @ 8¾
Heavy Black Rubber.....	4
Air Brake Hose.....	2¼ @ 2⅜
Fire and Large Hose	1¾ @ 1⅞
Garden Hose.....	1⅜ @ 1½
Matting.....	¾ @ 1

50 "	Uelé Stripes	9.	9.12½
35 "	Aruwimi	9.50	9.85 / 9.87½
14 "	Equateur firsts	9.90	10.37½

The sale of March 18 was very firm. A rise of 5 per cent. on valuations was paid in the average. Nearly the whole quantity found buyers—namely 338 tons out of 348 tons—at prices as follows:

	Estimation.	Sold at.
Lopori firsts.....*francs*	10.30	11.02½
Lopori seconds	8.50	8.87½
Lake Leopold firsts	10.	10.57½
Lake Leopold seconds	9.85	9.
Upper Congo balls	10.47½	10.87½
Mongalla strips	9.75	10.35
Aruwimi	9.60	10.30

C. SCHMID & CO., SUCCESSEURS.

Antwerp, March 19, 1904.

ANTWERP RUBBER STATISTICS FOR FEBRUARY.

DETAILS.	1904.	1903.	1902.	1901.	1900.
Stocks, Jan. 1...*kilos*	426,165	134,135	643,699	648,631	542,098
Arrivals in February.	364,466	545,813	607,115	459,632	884,156
Congo sorts	290,901	473,713	587,293	431,425	712,413
Other sorts	73,565	72,100	19,822	28,207	171,743
Aggregating	790,631	679,948	1,250,814	1,108,263	1,426,254
Sales in February	455,541	204,410	265,993	327,103	807,454
Stocks, Feb. 29	335,090	475,538	984,820	781,100	618,800
Arrivals since Jan. 1	886,725	717,673	1,243,358	1,003,258	1,360,036
Congo sorts	676,682	610,254	1,201,169	874,498	1,143,409
Other sorts	210,043	107,419	42,189	128,760	216,627
Sales since Jan. 1	1,162,535	900,240	673,247	836,197	1,033,227

RUBBER ARRIVALS AT ANTWERP.

MARCH. 17.—By the *Albertville*, from the Congo:

Bunge & Co	(Société Générale Africaine) *kilos*	275,000	
Do	(Chemins de fer des Grand Lacs)	15,000	
Do	(Société Anversoise)	28,000	
Do	(Comite Spécial Katanga)	40,000	
Do	Société Isangi)	6,000	
Do	(Cie. du Kasai)	36,000	
G. & C. Kreglinger	(La Lobay)	11,000	
Société Coloniale Anversoise	(Belge du Haut Congo)	3,000	
Do	(Cie. de Lomami)	21,000	
Cie. Commerciale des Colonies		1,500	
M. S. Cols		2,500	
Do		2,000	
Charles Dethier	(Société Belgika)	1,000	442,000

Balata from Venezuela.

THE INDIA RUBBER WORLD'S correspondent at Ciudad Bolivar furnishes the following details of the shipments of Balata from that port—covering the output from Venezuela—during 1903 by months, and for the preceding years since 1896, the date of the first statistics relating to this trade. The figures indicate weights in kilograms:

January	185,168	August	*nil*	Total, 1902	816,752
February	275,815	September	149,830	Total, 1901	1,196,414
March	102,567	October	133,784	Total, 1900	1,216,268
April	10,318	November	72,575	Total, 1899	749,872
May	10,173	December	151,676	Total, 1898	494,168
June	2,672			Total, 1897	295,733
July	*nil*	Total, 1903	1,094,578	Total, 1896	75,000

[Total, 1903, in Pounds: 2,408,072.]

PARA RUBBER VIA EUROPE.

	POUNDS.
FEB. 16.—By the *Ivernia*=Liverpool:	
Poel & Arnold (Caucho)	103,000
FEB. 13.—By the *Manitou*=London:	
United States Rubber Co. (Coarse)	15,000
FEB. 23.—By *La Touraine*=Havre:	
Poel & Arnold. (Coarse)	20,000
FEB. 23.—By the *Campania*=Liverpool:	
Poel & Arnold (Fine)	17,000
Poel & Arnold (Coarse)	34,000 51,000
FEB. 24.—By the *Moltke*=Hamburg:	
Poel & Arnold (Medium)	11,000
FEB 26.—By the *Majestic*=Liverpool:	
Poel & Arnold (Coarse)	19 000
George A. Alden & Co. (Fine)	8,000 27,000
FEB. 29.—By the *Etruria*=Liverpool:	
George A. Alden & Co	13,500
A. T. Morse & Co (Fine)	10,000
Poel & Arnold (Caucho)	25,000 48,500
MAR. 1.—By the *La Champagne*=Havre:	
Poel & Arnold (Fine)	11,000
MAR. 3.—By the *Oceanic*—Liverpool:	
Poel & Arnold (Caucho)	80,000
MAR. 7.—By the *Pretoria*=Hamburg:	
Poel & Arnold (Fine)	29,000
MAR. 9.—By the *Bovic*=Liverpool:	
Poel & Arnold (Coarse)	22,500
MAR. 11.—By the *Celtic*=Liverpool:	
Poel & Arnold (Caucho)	18,000
William Wright & Co (Fine)	7,000
United States Rubber Co. (Coarse)	8,000 33,000
MAR. 14.—By the *La Bretagne*=Havre:	
Poel & Arnold (Fine)	22,000
Poel & Arnold (Coarse)	4,800 26,80

During the first two months of the present year the shipments have been light. On account of the weather in November and December being very dry, the Balata gatherers did not get to work until about the end of January. The Ciudad Bolivar custom house still being closed, exports are made by the way of Laguaira and Carúpana, though it is hoped that direct shipments may be possible before long.

Exports of fine Rubber during 1903 amounted to about 60,000 pounds, and of coarse, about 33,000 pounds.

Rubber Receipts at Manaos.

DURING February and the first eight months of the crop season for three years [courtesy of Messrs. Witt & Co.]:

FROM—	FEBRUARY. 1904.	1903.	1902.	JULY-FEBRUARY. 1904.	1903.	1902.
Rio Purús—Acre.....*tons*	1080	1838	1224	4931	4473	5119
Rio Madeira	297	360	421	2088	1838	2281
Rio Jurua	672	786	349	2782	2801	2689
Rio Javary—Iquitos	273	78	40	2068	1330	1012
Rio Solimões	119	89	118	689	1165	1392
Rio Negro	91	124	72	358	449	259
Total	2532	3275	2224	12,916	12,056	12,752
Caucho	517	571	213	2130	1767	1826
Total	3049	3846	2437	15,046	13,823	14,578

IMPORTS FROM PARA AT NEW YORK.

[*The Figures Indicate Weights in Pounds.*]

March 7.—By the steamer *Bernard*, from Manáos and Pará:

IMPORTERS.	Fine.	Medium.	Coarse.	Caucho.	Total.
Poel & Arnold	385,800	69,000	136,600	15,700=	607,100
New York Commercial Co.	211,000	58,500	248,000	9,800=	527,300
A. T. Morse & Co	241,100	50,000	122,800	10,500=	424,400
United States Rubber Co.	124,800	32,900	135,700	5,400=	298,800
William Wright & Co	4,200		23,300	=	27,500
Lionel Hagenaers & Co.	10,900		10,000	=	20,900
Hagemeyer & Brunn	11,600	2,300	3,400	=	17,300
Total	989,400	212,700	679,800	41,400=	1,923,300

March 15.—By the steamer *Dunstan*, from Manáos and Pará:

United States Rubber Co.	540,000	81,000	169,000	73,300=	863,300
Poel & Arnold	469,800	61,700	117,800	42,300=	691,600
New York Commercial Co.	322,900	76,100	190,200	7,700=	596,900
A. T. Morse & Co	85,300	23,400	68 300	29,700=	206,700
G. Amsinck & Co	61,200	9,700	16,200	20,100=	107,200
William Wright & Co	40,200	4,000	38,800	=	83,000
Lionel Hagenaers & Co.	8,000		6,400	=	14,400
Hagemeyer & Brunn	5,700	2,400	900	=	9,000
Thomsen & Co	2,900		5,800	=	8,700
Total	1,536,000	258,300	613,400	173,100=	2,580,800

March 28.—By the steamer *Hildebrand*, from Manáos and Pará:

Poel & Arnold	227,400	59,300	107,600	132,400=	526,700
A. T. Morse & Co	105,300	27,600	49,900	1,100=	183,900
United States Rubber Co.	58,500	12,500	63,600	89,500=	223,900
New York Commercial Co.	60,500	25,100	88,800	700=	175,100
G. Amsinck & Co.	30,900	8,400	4,400	6,300=	50,000
William Wright & Co	4,300		49,000	=	53,300
Hagemeyer & Brunn	8,400	2,400	6,800	=	17,600
Thomsen & Co	5,300		7,100	=	12,400
L. Hagenaers & Co.	4,000		2,600	=	6,600
Total	504,400	135,300	379,800	230,000=	1,249,500

[NOTE.—The steamer *Horatio* from Pará, due at New York on April 4, has on board 400 tons of Rubber and 70 tons of Caucho.]

OTHER ARRIVALS AT NEW YORK

CENTRALS.

		POUNDS.
FEB. 20.—By the *Byron*=Bahia:		
Hirsch & Kaiser	24,000	
J. H. Rossbach & Bros	17,500	
Eggers & Heinlein	8,000	49,500
FEB. 23.—By the *Pallanza*=Hamburg:		
Hirsch & Kaiser	14,000	
A. T. Morse & Co	2,300	16,300
FEB. 20.—By the *Vigilancia*=Mexico:		
H. Marquardt & Co	5,500	
Fred Probst & Co	3,000	
L. N. Chemedlin & Co	1,500	
E. Steiger & Co	1,000	
Samuels & Cummings	500	11,500
FEB. 23.—By the *Bolivia*=Cartagena, etc.:		
Isaac Brandon & Bros	13,500	
D. A. De Lima & Co	2,000	
Isaac Kubie & Co	2,000	
American Trading Co	1,200	
Joaquin Ferro	1,200	
G. Amsinck & Co	1,500	
Graham, Hinkley & Co	700	
Suzarte & Whitney	500	
Guiterman Rosenfeld & Co	200	
Kunhardt & Co	200	
For London	1,500	24,500
FEB. 23.—By the *Strabo*=Bahia, etc.:		
J. H. Rossbach & Bros	28,000	
Hirsch & Kaiser	23,000	
G. Amsinck & Co	2,200	53,200
FEB. 23.—By the *Comus*=New Orleans:		
A. T. Morse & Co	5,500	
G. Amsinck & Co	3,300	
Eggers & Heinlein	3,500	12,300
FEB. 24.—By the *Moltke*=Hamburg:		
Poel & Arnold		9,800
FEB. 25.—By *El Siglo*=New Orleans:		
Manhattan Rubber Mfg. Co	9,000	
A. T. Morse & Co	5,500	
Eggers & Heinlein	2,500	17,000
FEB. 25.—By the *Alliance*=Colon:		
Hirzel, Feltman & Co	10,500	
Roldan & Van Sickle	6,500	
Meyer Hecht	6,000	
G. Amsinck & Co	4,900	
W. Loaiza & Co	4,200	
American Trading Co	3,300	
Livingstone & Co	2,800	
W. R. Grace & Co	2,100	
A. M. Capens Sons	2,200	
A. Santos & Co	1,900	
D. A. DeLima & Co	1,900	
Dumarest & Co	1,700	
Isaac Brandon & Bros	1,700	
Eggers & Heinlein	1,300	
E. B. Strout	1,400	
Smithers, Nordenholt & Co	900	
Mecke & Co	800	
Maldanodo & Co	400	
Fred. Probst & Co	200	54,700
MAR. 1.—By the *Caracas*=Maracaibo:		
Kunhardt & Co.		4,500
MAR. 1.—By the *Yucatan*=Colon:		
Hirzel, Feltman & Co	13,000	
Lawrence Johnson & Co	5,500	
Meyer Hecht	4,900	
G. Amsinck & Co	4,800	
American Trading Co	2,000	
Livingstone & Co	1,800	
Piza Nephews & Co	1,700	
Isaac Brandon & Bros	1,000	
Silva Bussenius & Co	1,300	
Roldan & Van Sickle	1,300	
Rosenthal Sons & Co	1,200	
Andreas & Co	1,000	
Kunhardt & Co	900	40,400
MAR. 1.—By the *Altai*=Cartagena, etc.:		
G. Amsinck & Co	2,500	
E. B. Strout	1,500	
A. D. Straus & Co	500	
Isaac Brandon & Bros	800	
A. Held	1,500	
Kunhardt & Co	800	
Guiterman, Rosenfeld & Co	600	
Suzarte & Whitney	300	
Pedro A. Lopez	200	8,700
MAR. 5.—By the *Esperanza*=Mexico:		
E. Steiger & Co	1,200	
Harburger & Stack	700	
Graham Hinkley & Co	600	
H. Marquardt & Co	1,000	3,500

CENTRALS—Continued.

MAR. 5.—By the *Carib II*=Truxillo:		
Eggers & Heinlein	5,800	
H. W. Peabody & Co	1,000	
A. S. Lascellas & Co	400	
For London	600	7,800
MAR. 7.—By *El Dorado*=New Orleans:		
Manhattan Rubber Mfg. Co	13,500	
Eggers & Heinlein	1,500	
A. N. Rotholz	3,000	
G. Amsinck & Co	1,000	19,000
MAR. 7.—By the *Tintoretto*=Bahia:		
J. H. Rossbach & Bros	27,000	
Hirsch & Kaiser	23,000	
A. F. Hitch & Co	11,000	61,000
MAR. 8.—By the *City of Washington*=Colon:		
Meyer Hecht	5,800	
Hirzel, Feltman & Co	5,000	
E. B. Strout	3,000	
G. Amsinck & Co	700	
Silva, Bussenius & Co	600	15,100
MAR. 9.—By the *Sarnia*=Savanilla, etc.:		
Czarnikow, McDougal & Co	1,500	
Mecke & Co	1,500	
G. Amsinck & Co	400	
Hierapolis & Co	100	
Isaac Brandon & Bros	800	4,300
MAR. 11.—By *El Norte*=New Orleans:		
A. T. Morse & Co	8,000	
Manhattan Rubber Mfg. Co	2,200	
For Europe	1,500	11,070
MAR. 12.—By the *Havana*=Mexico:		
Harburger & Stack	3,500	
H. Marquardt & Co	700	
Samuels & Cummings	700	
L. N. Chemedlin & Co	600	
E. Steiger & Co	500	
American Trading Co	300	
Graham, Hinkley & Co	200	6,500
MAR. 15.—By the *Seguranca*=Colon:		
G. Amsinck & Co	11,200	
Hirzel, Feltman & Co	6,100	
Isaac Brandon & Bros	6,000	
Dumarest & Co	4,600	
Meyer Hecht	4,500	
A. M. Capen Sons	2,700	
Lawrence Johnson & Co	2,500	
Livingstone & Co	1,800	
Piza, Nephews Co	1,600	
R. G. Barthold	1,100	
D. A. De Lima & Co	1,000	
Graham Hinkley & Co	1,000	
George A. Alden & Co	1,000	
Charles E. Griffin	600	
Silva, Bussenius & Co	700	
Roldan & Van Sickle	600	
W. Loaiza & Co	600	
Mecke & Co	500	
Guiterman, Rosenfeld & Co	600	
A. D. Straus & Co	600	49,300
MAR. 15.—By the *Bleucher*=Hamburg:		
Poel & Arnold	6,700	
A. T. Morse & Co	3,600	10,300
MAR. 15.—By the *Covantes*=Bahia:		
J. H. Rossbach & Bros	22,000	
Hirsch & Kaiser	12,000	34,000
MAR. 17.—By the *Flandria*=Savanilla:		
J. H. Recknagel & Co	4,000	
Harburger & Stack	500	
G. Amsinck & Co	500	
D. A. DeLima & Co	200	5,200
MAR. 21.—By the *Vigilancia*=Mexico:		
H. Marquardt & Co	2,500	
Harburger & Stack	2,200	
E. Steiger & Co	1,000	
Samuels & Cummings	1,000	
For Hamburg	5,000	11,700
MAR. 21.—By the *Tennyson*=Bahia:		
J. H. Rossbach & Bros	7,800	
Eggers & Heinlein	5,400	
Hirsch & Kaiser	4,500	
A. D. Hitch & Co	4,500	22,200
MAR. 23.—By the *Mesaba*=London:		
Eggers & Heinlein		11,000
MAR. 23.—By the *Siberia*=Cartagena:		
Kunhardt & Co	3,200	
American Trading Co	1,300	
Guiterman, Rosenfeld & Co	1,100	
Isaac Brandon & Bros	1,300	6,900
MAR. 23.—By the *Alliance*=Colon:		
Hirzel, Feltman & Co	6,500	
Meyer Hecht	2,900	
D. A. De Lima & Co	2,000	
Eggers & Heinlein	2,000	
American Trading Co	1,500	
G. Amsinck & Co	1,000	
Isaac Brandon & Bros	800	

CENTRALS—Continued.

W. Loaiza & Co	800	
E. Scheitlin & Co	500	
Fred. Probst & Co	500	
Jimenez & Escobar	300	18,800

AFRICANS.

		POUNDS.
FEB. 23.—By the *Campania*=Liverpool:		
A. T. Morse & Co	36,000	
George A. Alden & Co.	13,000	49,000
FEB. 23.—By the *Patricia*=Hamburg:		
A. T. Morse & Co	13,500	
Poel & Arnold	13,500	
George A. Alden & Co.	9,000	36,000
FEB. 24.—By the *Zeeland*=Antwerp:		
George A. Alden & Co	165,000	
A. T. Morse & Co.	15,000	
Poel & Arnold	8,000	188,000
FEB. 24.—By the *Moltke*=Hamburg:		
A. T. Morse & Co	29,000	
Poel & Arnold	17,000	
George A. Alden & Co	9,500	55,500
FEB. 26.—By the *Majestic*=Liverpool:		
A. T. Morse & Co	15,000	
George A. Alden & Co	2,000	
United States Rubber Co	6,500	23,500
FEB. 26.—By the *Armenian*=Liverpool:		
George A. Alden & Co	66,000	
Poel & Arnold	44,000	110,000
FEB. 29.—By the *St. Louis*=London:		
Poel & Arnold		8,000
FEB. 29.—By the *Etruria*=Liverpool:		
George A. Alden & Co	27,000	
A. T. Morse & Co	23,000	
United States Rubber Co	37,000	87,000
MAR. 1.—By the *La Champagne*=Havre:		
A. T. Morse & Co		30,000
MAR. 1.—By the *Peninsular*=Lisbon:		
United States Rubber Co	179,000	
George A. Alden & Co	45,000	
Rubber Trading Co	6,500	230,500
MAR. 3.—By the *Oceanic*=Liverpool:		
Poel & Arnold	17,000	
Rubber Trading Co	10,000	27,000
MAR. 7.—By the *Pretoria*=Hamburg:		
A. T. Morse & Co	33,000	
George A. Alden & Co	10,000	
Poel & Arnold	3,000	46,000
MAR. 8.—By the *Vaderland*=Antwerp:		
A. T. Morse & Co	173,000	
Poel & Arnold	70,000	
William Wright & Co	23,000	
Robinson & Tallman	2,000	268,000
MAR. 8.—By the *Patria*=Lisbon:		
George A. Alden & Co	90,000	
Poel & Arnold	22,000	
A. T. Morse & Co	11,000	123,000
MAR. 9.—By the *Bovic*=Liverpool:		
George A. Alden & Co.	133 000	
Poel & Arnold	67,000	
United States Rubber Co	10,000	
A. T. Morse & Co	15,000	225,000
MAR. 10.—By the *Graf Waldersee*=Hamburg:		
A. T. Morse & Co	67,000	
George A. Alden & Co	12,000	79,000
MAR. 11.—By the *Celtic*=Liverpool:		
Poel & Arnold	43,000	
A. T. Morse & Co	18,000	
George A. Alden & Co	13,000	
H. A. Gould Co	3,000	
Earle Brothers	1,500	78,500
MAR. 14.—By the *St. Paul*=London:		
Poel & Arnold	18,000	
H. A. Gould Co	4,000	22,000
MAR. 15.—By the *Noordam*=Rotterdam:		
Poel & Arnold		28,000
MAR. 14.—By the *Umbria*=Liverpool:		
United States Rubber Co	35,000	
A. T. Morse & Co	36,000	
Poel & Arnold	15,000	
Rubber Trading Co	3,500	89,500
MAR. 15.—By the *Kroonland*=Antwerp:		
George A. Alden & Co	182,000	
A. T. Morse & Co	135,000	
Poel & Arnold	35,000	
Joseph Cantor	9,000	361,000
MAR. 15.—By the *Bleucher*=Hamburg:		
A. T. Morse & Co		36,000

AFRICANS—Continued.

MAR. 18.—By the *Cedric*=Liverpool:

United States Rubber Co	72,000	
George A. Alden & Co	34,000	
Poel & Arnold	9,000	
Joseph Cantor	3,500	118,500

MAR. 19.—By the *Campania*=Liverpool:

A. T. Morse & Co	11,000	
William Wright & Co	3,500	14,500

MAR. 21.—By the *Frieka*=Bordeaux:

A. T. Morse & Co		11,000

MAR. 22.—By the *Zeeland*=Antwerp:

A. T. Morse & Co	40,000	
Joseph Cantor	5,500	
William Wright & Co	4,500	50,000

MAR. 23.—By the *Cevic*=Liverpool:

United States Rubber Co	225,000	
A. T. Morse & Co	25,000	
Rubber Trading Co	9,000	259,000

MAR. 23.—By the *Mesaba*=London:

Poel & Arnold		11,000

MAR. 24.—By the *Majestic*=Liverpool:

Poel & Arnold	25,000	
George A. Alden & Co	10,000	
A. T. Morse & Co	2,500	37,500

EAST INDIAN.

	POUNDS.	
FEB. 23.—By the *Philadelphia*=London:		
Poel & Arnold		35,000
MAR. 4.—By the *Glenroy*=Singapore:		
William Wright & Co	4,500	
Poel & Arnold	13,000	
Robert Branss & Co	11,000	29,000
MAR. 7.—By the *New York*=London:		
Poel & Ardoid		9,000
MAR. 14.—By the *Himeria*=Singapore:		
Poel & Arnold	33,000	
A. T. Morse & Co	13,500	
William Wright & Co	13,000	59,500

EAST INDIANS—Continued

MAR. 23.—By the *Mesaba*=London:

Poel & Arnold		11,000
MAR. 24.—By the *Nubia*=Singapore:		
To order		10,000

PONTIANAK.

MAR. 4.—By the *Glenroy*=Singapore:

William Wright & Co	500,000	
Poel & Arnold	100,000	
Heabierd Co	90,000	
Robert Branss & Co	45,000	
Rubber Trading Co	25,000	760,000
MAR. 14.—By the *Himeria*=Singapore:		
William Wright & Co	540,000	
Poel & Arnold	110,000	
Rubber Trading Co	20,000	
Robert Branss & Co	17,000	687,000
MAR. 24.—By the *Nubia*=Singapore:		
W. R. Russell & Co		65,000

GUTTA-PERCHA AND BALATA.

	POUNDS.	
FEB. 24.—By the *Moltke*=Hamburg:		
To order		10,000
MAR. 10.—By the *Graf Waldersee*=Hamburg:		
To order		12,500
MAR. 15.—By the *Blucher*=Hamburg:		
To order		7,000
BALATA.		
FEB. 23.—By the *Philadelphia*=London:		
H. A. Gould Co		6,000
MAR. 7.—By the *Fontabelle*=Demerara:		
Thomas Cameroon		35,000
MAR. 14.—By the *St. Paul*=London:		
H. A. Gould		11,800
MAR. 16.—By the *Prins Willem IV.*=Trinidad:		
George A. Alden & Co	2,500	
Middleton & Co	1,000	3,500

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—FEBRUARY.

Imports:	POUNDS.	VALUE.
India-rubber	8,922,414	$6,210,277
Gutta-percha	18,119	9,351
Gutta-jelutong (Pontianak)	491,371	14,902
Total	9,431,904	$6,234,530
Exports:		
India-rubber	22,971	$ 16,426
Reclaimed rubber	73,845	7,683
Rubber Scrap Imported	555,385	$ 34,186

BOSTON ARRIVALS.

	POUNDS	
FEB. 6.—By the *Cestrian*=Liverpool:		
Poel & Arnold—Caucho		11,436
FEB. 8.—By the *Sylvania*=Liverpool:		
Poel & Arnold—African	14,045	
Poel & Arnold—Medium Para	16,000	
Poel & Arnold—Caucho	15,000	45,045
FEB. 12.—By the *Devonian*=Liverpool:		
Poel & Arnold—African		11,814
FEB. 17.—By the *Cymric*=Liverpool:		
Poel & Arnold—Fine		23,451
FEB. 17.—By the *Michigan*=Liverpool:		
George A. Alden & Co.—African		18,226
FEB. 19.—By the *Bethania*=Hamburg:		
George A. Alden & Co.—African		22,000
FEB. 24.—By the *Lancastrian*=London:		
George A. Alden & Co.—African		21,896
FEB 29.—By the *Kansas*=Liverpool:		
Poel & Arnold—Caucho		22,687
FEB. 29.—By the *Saxonia*=Liverpool:		
Poel & Arnold—African		4,288
Total		179,788

[Value, $132,611.]

FEBRUARY EXPORTS OF INDIA-RUBBER FROM PARA (IN KILOGRAMS).

EXPORTERS.	UNITED STATES.					EUROPE.					TOTAL
	FINE.	MEDIUM.	COARSE.	CAUCHO.	TOTAL.	FINE.	MEDIUM.	COARSE.	CAUCHO.	TOTAL.	
Adelbert H. Alden	98,570	22,061	148,593	2,831	272,055	150,389	29,085	32,780	51,756	264,010	536,065
Cmok, Schrader & Co	78,832	15,533	78,616	—	172,981	92,650	7,140	49,640	114,960	264,390	437,371
Frank da Costa & Co	27,421	5,666	164,725	—	197,812	61,944	5,874	69,836	1,540	139,194	337,006
J. Marques & Co	4,791	—	6,283	—	11,074	15,727	—	5,505	7,605	28,837	39,911
Neale & Staats	—	—	16,748	—	16,748	1,008	168	948	37	2,161	18,909
Pires, Teixeira & Co	9,590	—	8,505	—	18,095	—	—	—	—	—	18,095
Kanthack & Co	—	—	—	—	—	7,580	3,380	1,790	—	12,750	12,750
Singlehurst Brocklehurst & Co.	—	—	—	—	—	4,640	639	152	—	5,431	5,431
Direct from Manáos	802,514	181,724	211,294	123,005	1,318,537	402,766	50,728	64,008	325,756	843,258	2,161,795
Direct from Iquitos	—	—	—	—	—	82,219	8,759	47,353	93,563	231,894	231,894
Total for February	1,021,718	224,984	634,764	125,836	2,007,302	818,923	105,773	272,012	595,217	1,791,925	3,799,227
Total for January-Nov.	8,088,442	1,035,588	2,321,413	2,819,897	14,265,340	6,378,270	1,466,099	4,538,916	1,101,475	13,484,760	27,750,100
TOTAL SINCE JANUARY 1.	9,146,292	1,166,356	2,647,431	3,067,361	16,027,440	7,248,063	1,648,845	4,994,076	1,160,369	15,051,353	31,078,793

OFFICIAL STATISTICS OF CRUDE INDIA-RUBBER (IN POUNDS).

UNITED STATES.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
January, 1904	4,982,409	235,498	4,746,911
January, 1903	5,881,341	191,006	5,690,335
January, 1902	6,273,939	172,106	6,101,833
January, 1901	4,448,785	364,742	4,084,785
January, 1900	5,528,830	268,225	5,260,605

GREAT BRITAIN.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
January, 1904	4,628,064	3,225,046	1,403,024
January, 1903	5,278,784	4,229,344	1,049,440
January, 1902	4,702,208	2,965,200	1,737,008
January, 1901	5,819,859	2,674,672	3,145,184
January, 1900	4,552,976	2,965,616	1,627,360

GERMANY.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
January, 1904	2,832,500	696,300	2,136,200
January, 1903	3,012,020	1,161,360	1,850,660
January, 1902	2,581,920	1,056,000	1,525,920
January, 1901	2,256,760	400,180	1,856,580
January, 1900	2,885,080	1,410,860	1,474,220

AUSTRIA-HUNGARY.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
January, 1904	243,100	2,640	240,460
January, 1903	260,920	220	260,700
January, 1902	223,960	220	223,740
January, 1901	140,800	440	140,360
January, 1900			